



PTTEP

MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM



Investor Presentation

Thailand Focus 2019, Bangkok
August 2019



Forward-looking Information

The information, statements, forecasts and projections contained herein reflect the Company's current views with respect to future events and financial performance. These views are based on assumptions subject to various risks. No assurance is given that these future events will occur, or that the Company's assumptions are correct. Actual results may differ materially from those projected.

Petroleum Reserves Information

In this presentation, the Company discloses petroleum reserves that are not included in the Securities Exchange and Commission of Thailand (SEC) Annual Registration Statement Form 56-1 under "Supplemental Information on Petroleum Exploration and Production Activities". The reserves data contained in this presentation reflects the Company's best estimates of its reserves. While the Company periodically obtains an independent audit of a portion of its proved reserves, no independent qualified reserves evaluator or auditor was involved in the preparation of reserves data disclosed in this presentation. Unless stated otherwise, reserves are stated at the Company's gross basis.

This presentation may contain the terms "proved reserves" and "probable reserves". Unless stated otherwise, the Company adopts similar description as defined by the Society of Petroleum Engineers.

Proved Reserves - Proved reserves are defined as those quantities of petroleum which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under current economic conditions, operating methods, and government regulations.

Probable Reserves - Probable reserves are defined as those unproved reserves which analysis of geological and engineering data suggests are more likely than not to be recoverable.



Strategy and Growth



Recent Development



Financial Performance



Five-Year Plan and Aspiration



PTTEP: the E&P Flagship of PTT Group

Plays a pivotal role in Thailand's oil and gas production



As PTT's Upstream Flagship



Government of Thailand

63.3%¹



Thailand's national energy company

65.3%²



Credit ratings equivalent to parent and country

S&P

Moody's

TRIS

FITCH

BBB+

Baa1

AAA

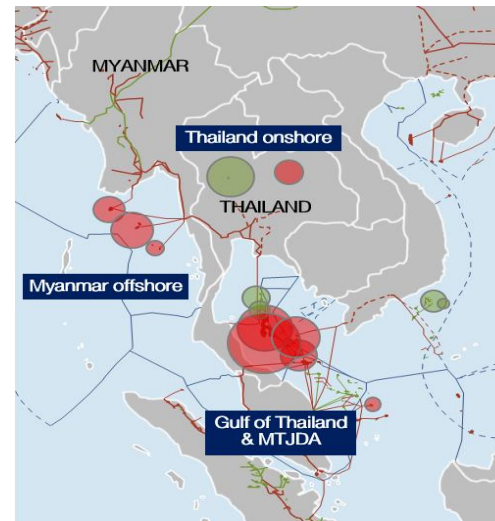
BBB+

Largest oil and gas producer in Thailand and Myanmar

Synergy with PTT's gas value chain through its dominant position in the regional gas market

Opportunities to expand into regional investments

PTTEP's operations in SEA



○ Approx. 20 KBOED of net sales volume
● Gas-weighted
● Oil-weighted

99%

of PTTEP's total sales volume

+99%

Reliability of plants and field facilities*

88%

of PTTEP's sales volume sold to PTT

14 USD/BOE

Average regional cash cost

* of PTTEP-operated projects in Gulf of Thailand, excl. planned shutdown
All figures are as of 6M2019

Notes:

1. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 12.2% held by the state-controlled Vayupak Fund I as of 7 March 2019

2. Ownership as of 9 August 2019

“Energy Partner of Choice”
through Competitive Performance and Innovation for Long-term Value Creation



Sustainable Development Framework



Strategy and Growth



Recent Development



Financial Performance



Five-Year Plan and Aspiration



Recent Key Achievement

Robust performance



1H Performance Achievement

Operation

Resilient average selling price

~ 47 \$/BOE

Strong sales volume

327 KBOED

Competitive unit cost

~30 \$/BOE

Financials

Healthy margin and liquidity

\$827 MM

Net income

74%

EBITDA Margin

\$1,310 MM

Operating Cash Flow

\$3,469 MM

Cash on hand

0.17x

Debt to equity ratio



Recent Portfolio Highlights

“Expand”

Focus growth in strategic areas : “Coming-Home” and “Strategic Alliance”



Acquired Murphy's assets
& awarded 2 exploration
blocks in Malaysia



Acquired Partex Holding
in the Middle East



Awarded 2 offshore
exploration blocks in UAE

“Execute”



Transition of operations

- Signed Production Sharing Contracts (PSCs) for Erawan and Bongkot fields in Feb 2019 with production to start in 2022-2023



The Final Investment Decision (FID) of the Pre-Development projects

- Started development in Algeria Hassi Bir Rekaiz Project, March 2019
- Announced FID of Mozambique Area 1 Project on initial 2 trains with capacity of 12.88 MTPA, June 2019



The Acceleration of Exploration Projects

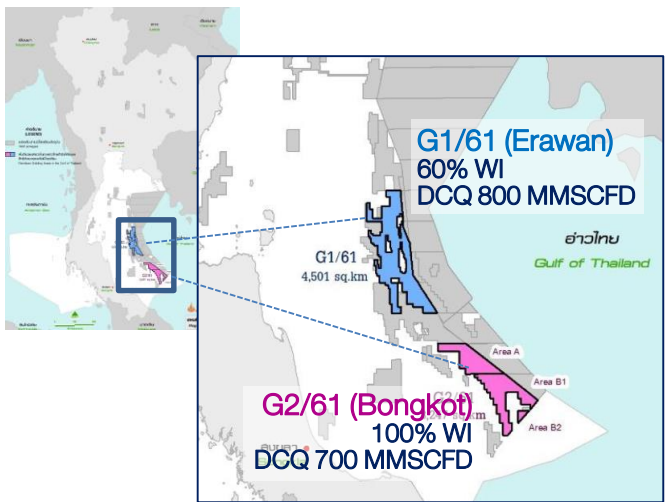
- Gas discovery in SK410B Project, Sarawak, Malaysia, estimated at 2-4 TCF

Bongkot and Erawan: Thailand Champion in Domestic Gas Supply

Execute Bongkot and Erawan transition plan



To supply 2/3 of domestic gas production starting from 2022 onwards.....



Growing production and reserves profile

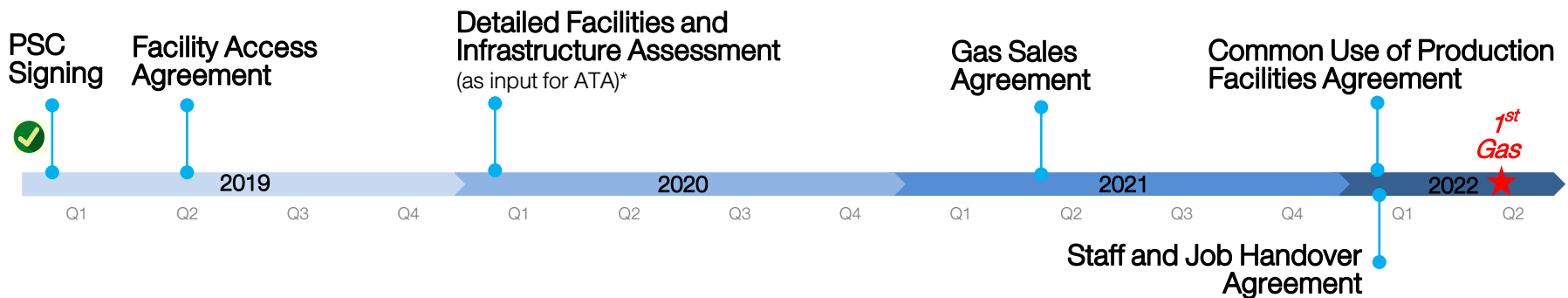
- Substantial volume boost for 10 years and beyond
- Immediate remarkable reserves addition
- Minimal risk in production profile



Generating strong cash flow

- No heavy upfront investment
- Self funding (positive net cash flow)
- Achieved target IRR with strong margin despite lower price

Concrete transition plan as an operator of G1/61 (Erawan) under PSC



***Asset Transfer Agreement (ATA):** To be agreed between current concessionaires and DMF by 2021 (1 year prior concession end)

Malaysian Assets

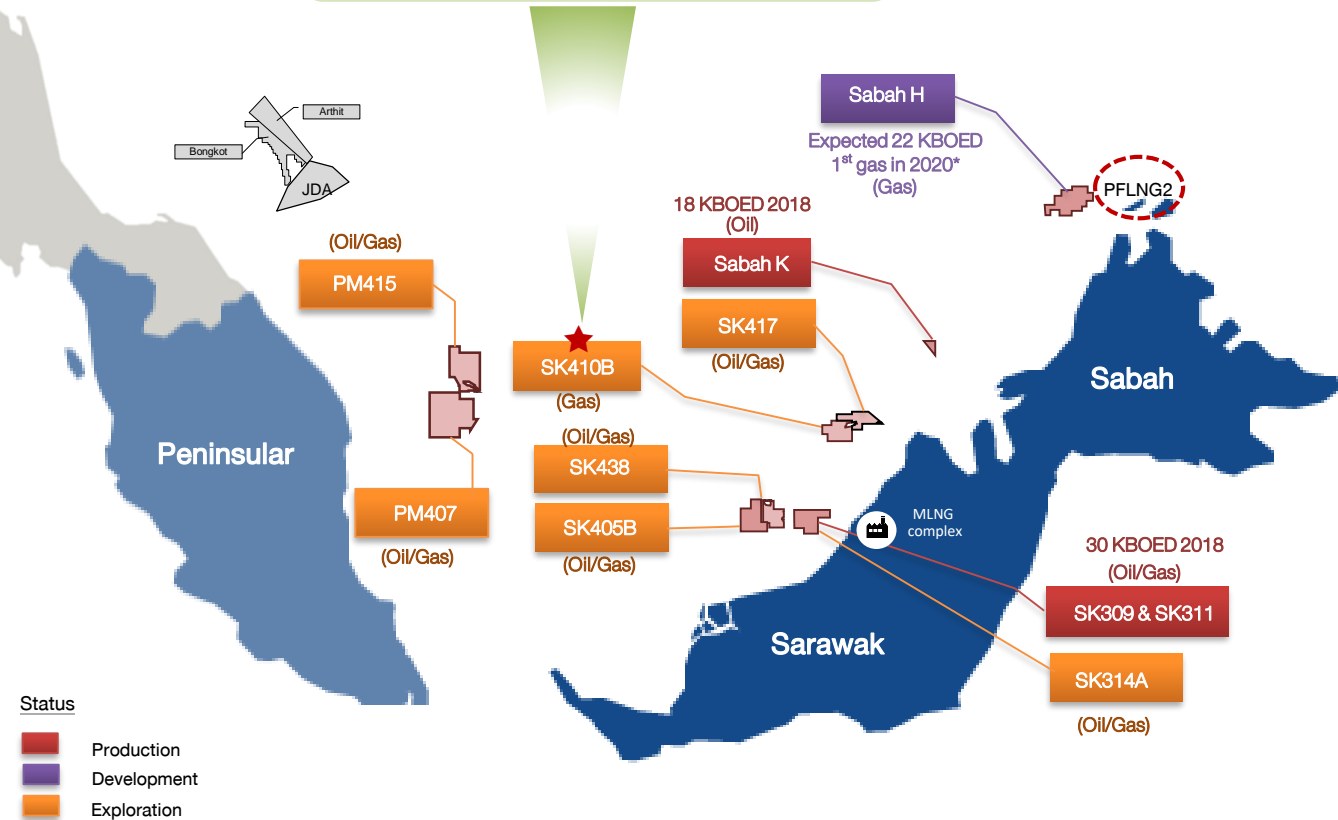
A new growth platform for PTTEP in South East Asia



- With completion of Murphy's acquisition, PTTEP has become the 3rd Largest player by resources size in Malaysia
- Diversified portfolio with production, development and exploration blocks in Sabah, Sarawak and Peninsular basins, with contribution around 48 KBOED of sales volume in 2018
- Transition plans are in place for newly acquired blocks
- Growing platform for further expansion in SEA with performance enhancement via operational synergy and best practice sharing across the region

Exploration Success in SK410B

- Significant resources discovery in June 2019, estimated 2-4 TCF
- Plan to drill additional appraisal well in 2020




* Volume stated represents net sale volume


Acquisition of Partex

Partnering with experienced operators in the Middle East

- PTTEP to acquire 100% of the shares in Partex, with total consideration of approximately USD 622 million*
- The major assets are in Oman and UAE which include PDO (Block 6), the largest oil asset in Oman
- Transaction is expected to complete by the end of 2019, subjected to customary consents and regulatory approvals

"Gateway to Future Regional Investment"

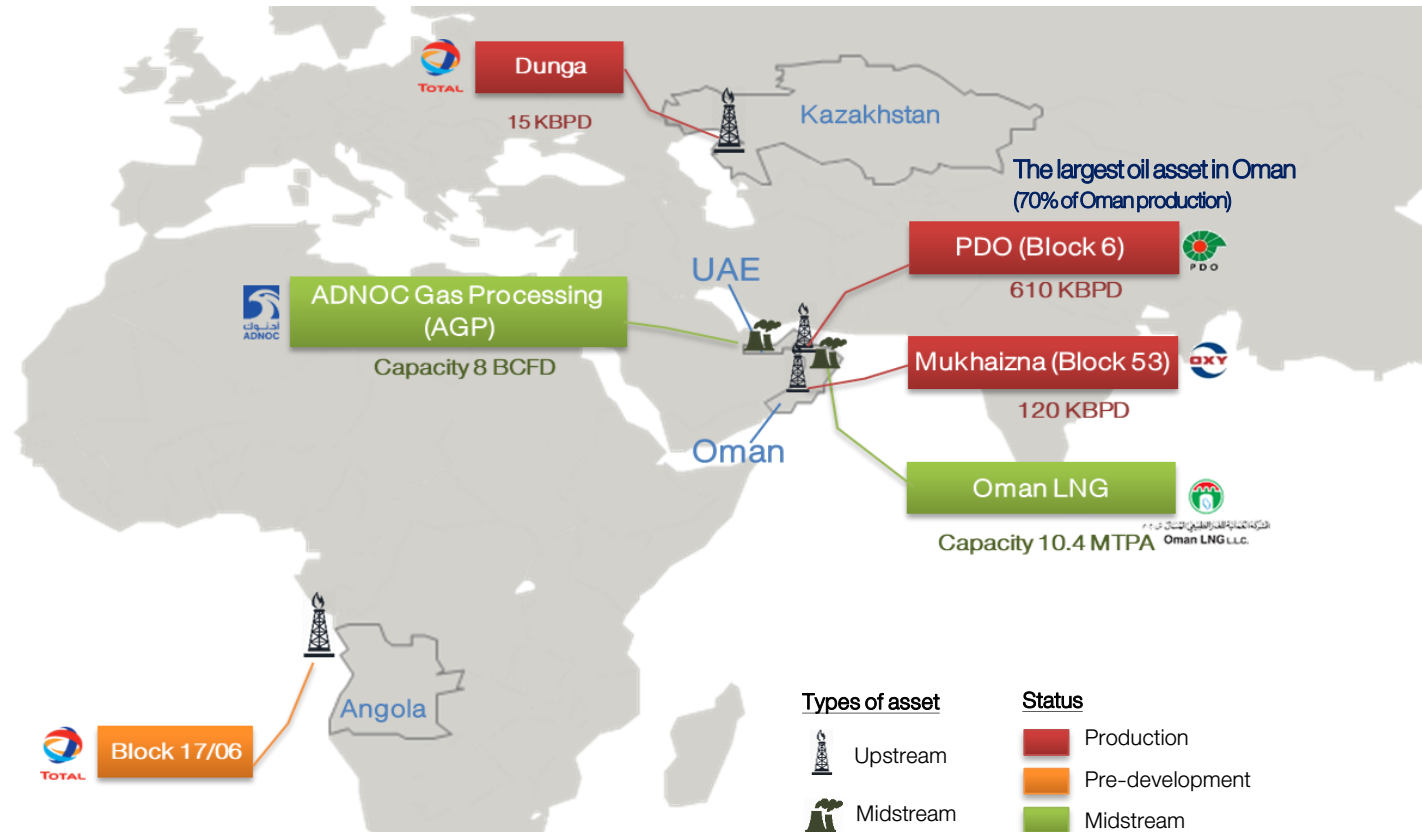
**Prolific Area**

**Strong Partnerships**

**World-Class Assets**

**Self funded with existing production**

- Sales volume +16,000 barrels/day
- 2P Add +65 million barrels

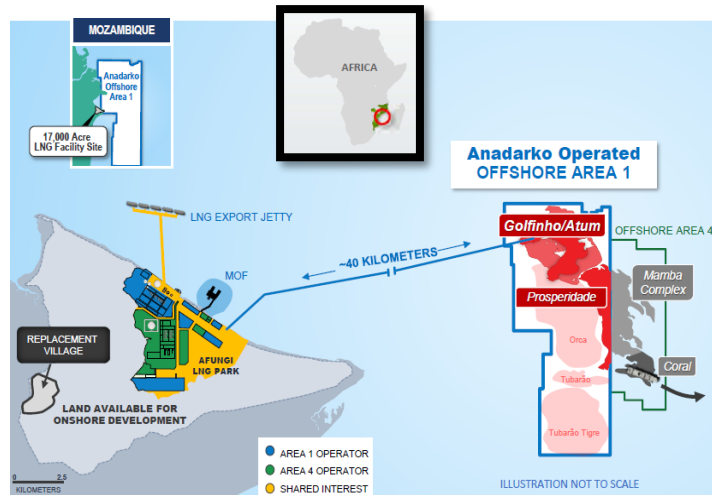


Note: Volumes stated represent gross volumes (100%)

*subject to customary net working capital and closing adjustments

Mozambique Area 1

FID, on the path of unlocking value from world class LNG asset



*Substantial recoverable resources of approximately 75 tcf
with scalable offshore development expending up to 50 MTPA*

Location and Cost Advantage

- Close proximity to shore
- High quality reservoirs
capable of flow up to 200 mmcf/d per well
- Access to Asian and European markets

Achievements

- ✓ Legal & Contractual Framework
- ✓ Plan of Development Approved
- ✓ Onshore & Offshore Contractors Awarded
- ✓ First Mover for the Marine Facility
- ✓ LNG SPAs ~11.1 MTPA

**FID in June 2019
with initial 2 trains of
12.88 MTPA capacity**

Way Forward

- ✓ Project Finance
(2/3 Project Financed)
- ✓ Drilling & Completion
- ✓ Onshore Construction and Offshore Installation
- ✓ Operation Readiness
- ✓ LNG Shipping

**1st Cargo
expected
2024**



Strategy and Growth



Recent Development



Financial Performance



Five-Year Plan and Aspiration

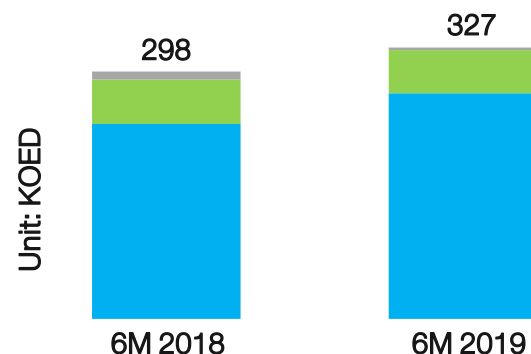


6M 2019 Key Financial Performance

Strong core performance supported by higher volumes and gas price



Sale Volumes



▲ **10% YTD**

The additional 22.22% interest in Bongkot Project

■ Thailand & MTJDA ■ Other SEA ■ Rest of world



Average Selling Price

	6M 2018	6M 2019
Gas (\$/MMBTU)	6.14	6.98
Liquid (\$/BBL)	66.77	62.07
Weighted Avg. (\$/BOE)	45.51	47.26
Avg. Dubai (\$/BBL)	68.01	65.48
Volume Mix (Gas : Liquid)	71:29	73:27

▲ **4% YTD**

Strong gas price leading to higher average selling price

Key Financial Performance

Unit : \$/BOE	6M 2018	6M 2019
Cash cost	14.29	14.42
Non-Cash cost	16.08	15.82
Unit cost	30.37	30.24*

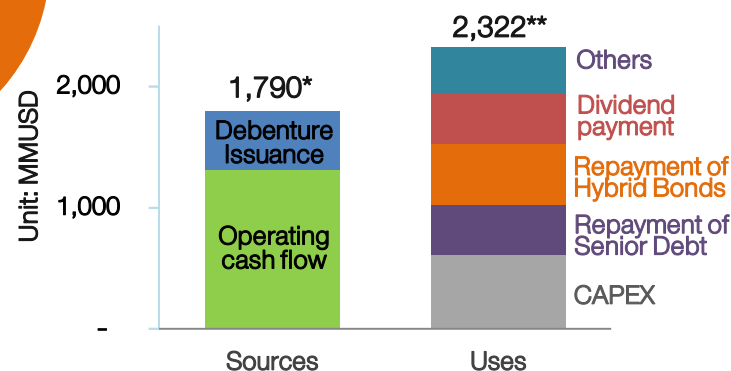
Unchanged YTD

Remain competitive unit cost

Note: * Exclude costs related to new business, if include, unit cost for 6M 2019 is 30.34\$/BOE



Unit Cost



74% EBITDA Margin

Maintain strong OCF

Remark: * Net of adjustment for the effect of exchange rate changes on cash and cash equivalents
** Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)



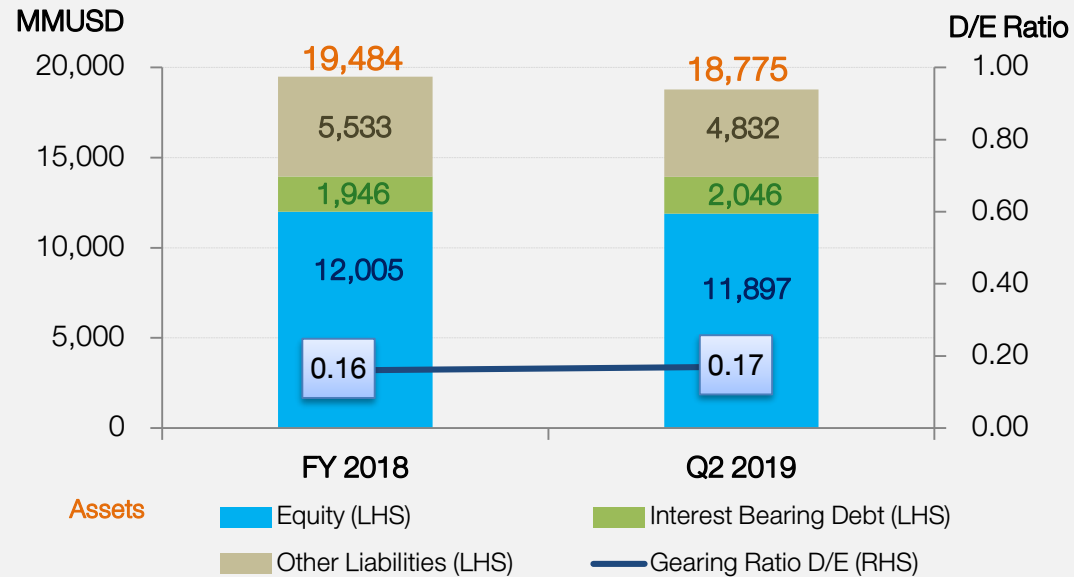
6M Source & Use of Funds

Financial Position and Dividends

Healthy balance sheet with low gearing



Capital Structure



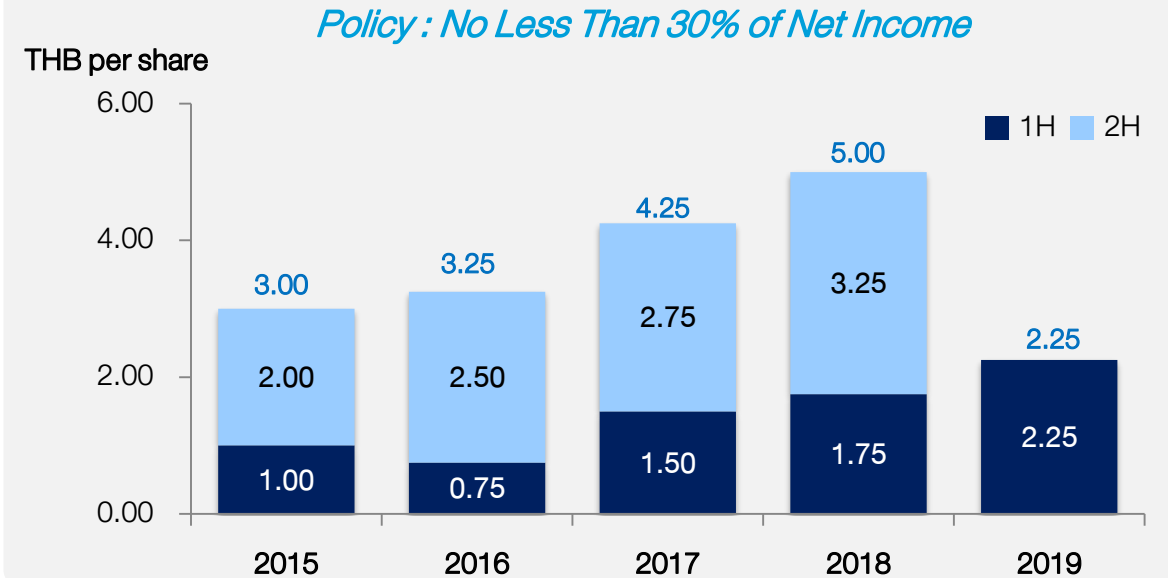
Debt Profile**



Weighted Average Cost of Debt* (%)	5.32	5.04
[Fixed : Floating]	[100 : 0]	[100 : 0]
Average Loan Life* (Years)	8.67	8.62

Remark: * Excludes Hybrid bonds

Dividend Payment History







Payout Ratio (% of net income)	N/A	98	90	55	35
Payout Ratio (% of recurring net income)	47	79	64	51	38

Outlook & Takeaways

Volumes boost with priorities in business transition for full value realization

2019 Guidance

	Q3 2019	FY 2019
 Average Sales Volume	~ 356	~ 345
 Average Gas Price	~ 6.8	~ 6.9
 Unit Cost	32-33	~ 32
 EBITDA Margin	FY 2019 70-75 %	

Note: Included the acquisition of Murphy's business in Malaysia which was completed in July 2019
Excluded the acquisition of Partex
Based on FY2019 Dubai oil price at 63 \$/BBL

PTTEP's Priorities

Ensuring Smooth Business Transition

Acceleration of Exploration Activities





Strategy and Growth



Recent Development



Financial Performance



Five-Year Plan and Aspiration

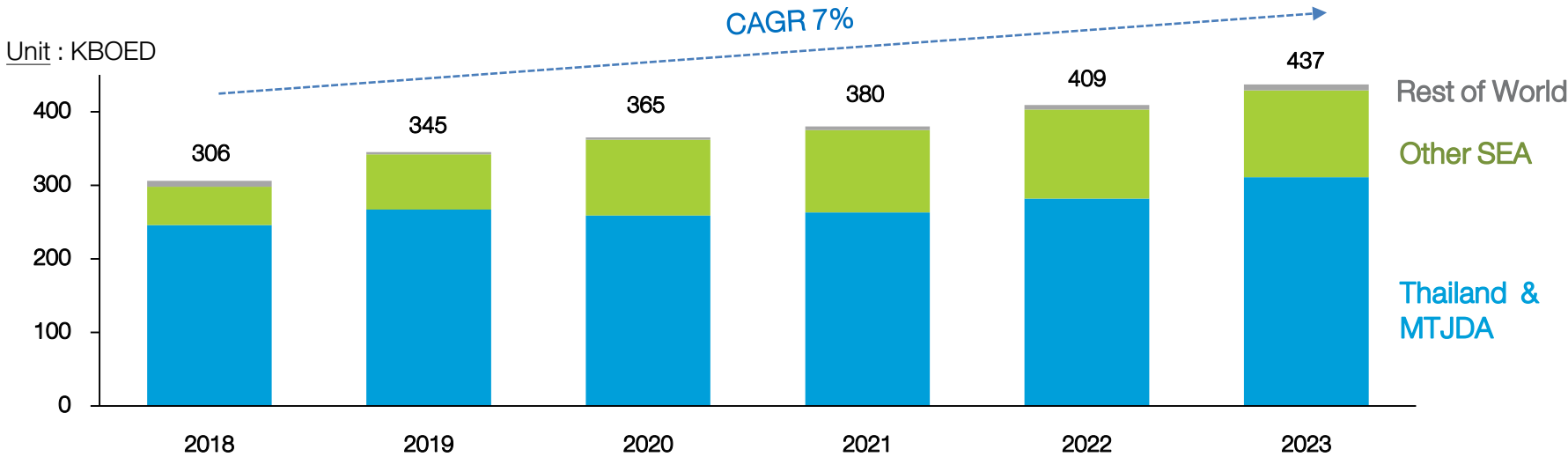


Revised Five –Year Plan*

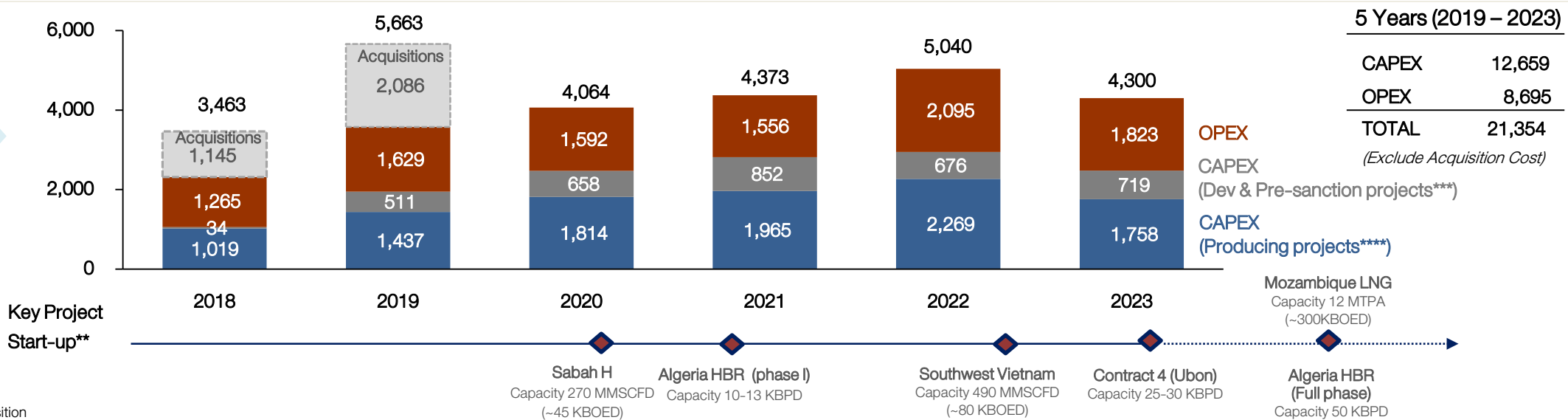
Incorporating growth from recent developments : Murphy and Bidding win of BKT & ERW



Sales Volume



Investment



Note: * Exclude Partex acquisition
 ** Subject to FID timing
 *** Development & Pre-sanction projects include Sabah H, Mozambique LNG, Contract 4 (Ubon), Algeria HBR and Southwest Vietnam
 **** Includes exploration and appraisal in all projects and head office CAPEX

PTTEP's Aspired Portfolio in 2030

Target for sustainable growth



5% CAGR on Production Target

≥7 years of R/P Ratio



Bongkot & Erawan under New PSCs
Acquisition of Murphy's business in Malaysia



FID Projects



Accelerating
Exploration Activities



New Businesses
and Other M&As

2030



Sustainable Development Framework

Thank you and Q&A



You can reach the Investor Relations team for more information and inquiry through the following channels:



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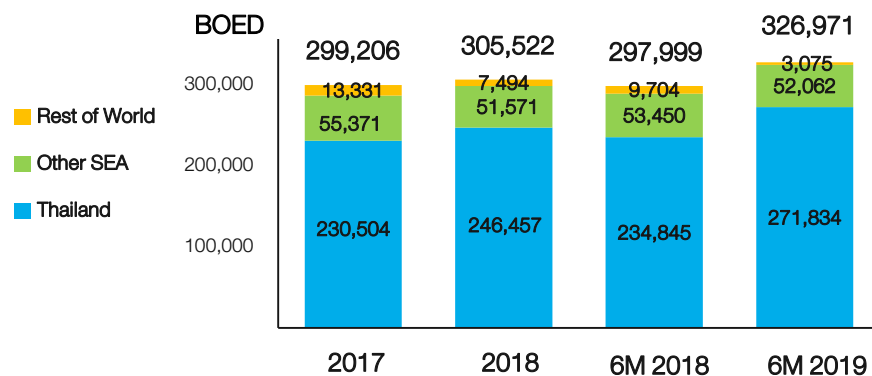
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Sales Volume & Unit Cost

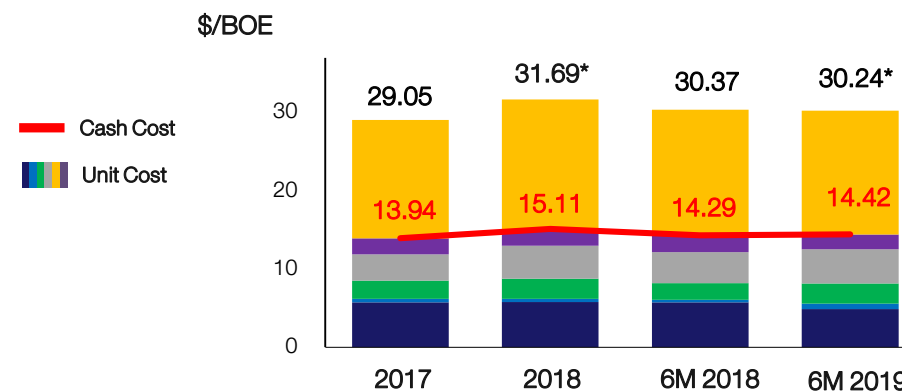
Strong volume with competitive cost

Sales Volume and Price



Gas (\$/MMBTU)	5.59	6.42	6.14	6.98
Liquid (\$/BBL)	52.26	67.40	66.77	62.07
Weighted Avg. (\$/BOE)	39.20	46.66	45.51	47.26
Avg. Dubai (\$/BBL)	53.14	69.65	68.01	65.48
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	49.64	67.01	61.85	64.58
Volume Mix (Gas : Liquid)	70 : 30	72 : 28	71 : 29	73 : 27
Revenue Mix (Gas : Liquid)	60 : 40	59 : 41	57 : 43	65 : 35

Unit Cost



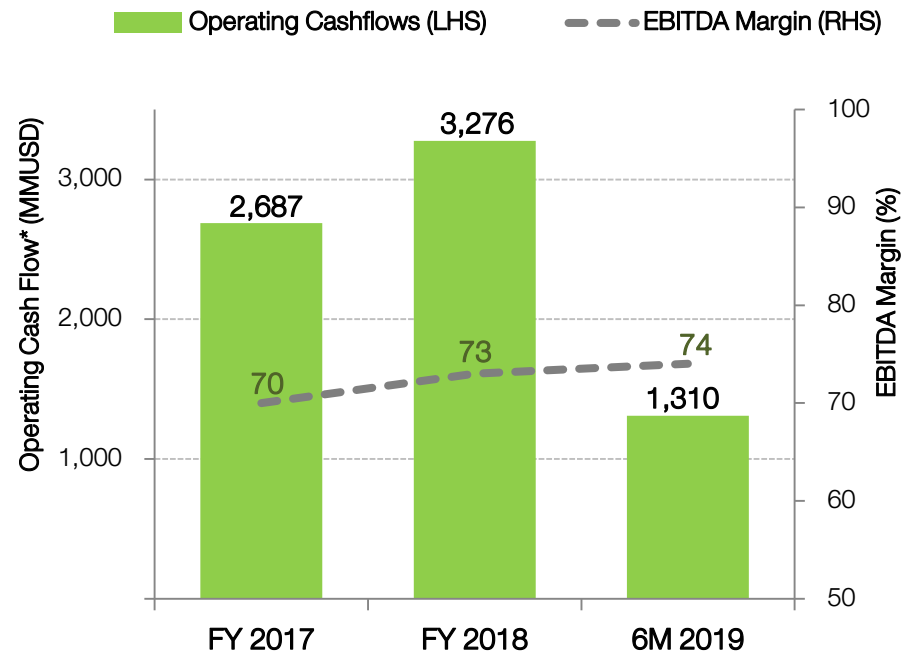
DD&A	15.11	16.58	16.08	15.82
Finance Cost	2.07	2.14	2.12	1.90
Royalties	3.37	4.21	3.98	4.38
G&A	2.30	2.57	2.11	2.56
Exploration Expenses	0.48	0.41	0.33	0.70
Operating Expenses	5.72	5.78	5.75	4.88
Lifting Cost	4.19	4.33	4.17	3.59

Note: * Exclude costs related to new business, If include unit cost for 2018 and 6M/19 are 31.72 \$/BOE and 30.34 \$/BOE respectively
The formulas for calculating ratios are provided in the supplementary section for your reference

Cash Flow Performance

Robust operating cash flow

Cash Flow Performance



Net Income	594	1,120	827
Recurring Net Income***	836	1,215	763

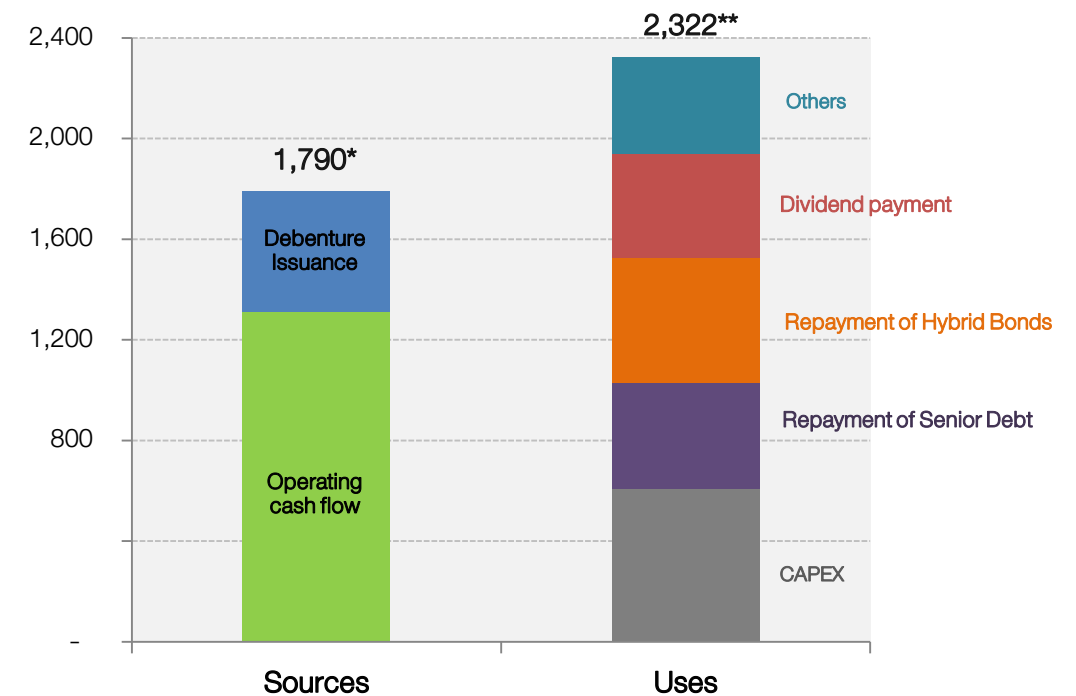
Remark: * Net of adjustment for the effect of exchange rate changes on cash and cash equivalents

** Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)

*** Excludes Gain/(Loss) on FX, Deferred tax from Functional currency, Current Tax from FX Revaluation, Gain/(Loss) from Financial Instruments, Impairment Loss on Assets, and etc.

Source & Use of Funds in 6M 2019

MMUSD



Financial Performance : Income Statement

Maintained strong EBITDA margin

	Q1 19	Q2 19	Q2 18	6M 19	6M 18
Sales and Revenue from Pipeline Transportation (MMUSD)	1,356	1,503	1,319	2,859	2,503
EBITDA (MMUSD)	1,025	1,087	965	2,112	1,844
Net Income (MMUSD)	394	433	113	827	536
Recurring Net Income (MMUSD)	374	389	336	763	640
Earning Per Share (USD)	0.10	0.10	0.03	0.20	0.13
Key Financial Ratios					
EBITDA Margin (%)	76	72	73	74	74
Return on Equity (%) (LTM)	9	12	5	12	5
Return on Capital Employed (%) (LTM)	8	11	5	11	5
Return on Equity (%) (LTM, Recurring Net Income)	11	11	9	11	9
Return on Capital Employed (%) (LTM, Recurring Net Income)	10	10	9	10	9

Note: The formulas for calculating ratios are provided in the supplementary section for your reference

Financial Performance : Balance Sheet

Maintained low gearing ratio after refinance

	YE 18	Q2 19
Total Assets (MMUSD)	19,484	18,775
- Cash & cash equivalents* (MMUSD)	4,001	3,469
Total Liabilities (MMUSD)	7,479	6,878
- Interest bearing debt (MMUSD)	1,946	2,046
Equity (MMUSD)	12,005	11,897
Key Financial Ratios		
Total Debt to Equity (X)	0.16	0.17
Net Debt* to Equity (X)	(0.17)	(0.14)
Total Debt to Capitalization (X)	0.14	0.15
Total Debt to EBITDA (X)	0.63	0.52
EBITDA Interest Coverage (X)	32	36

Credit Ratings :	BBB+ (S&P), Baa1 (Moody's), BBB+ (Fitch), AAA (TRIS)
Weighted Average Cost of Debt** :	5.04%
Average Loan Life** :	8.62 years

Note: * Cash & Cash Equivalents (Cash on hand) include Short-term Investments (Fixed deposit > 3 months)

Net Debt = Total Debt less Cash & Cash Equivalents and Short-term Investments

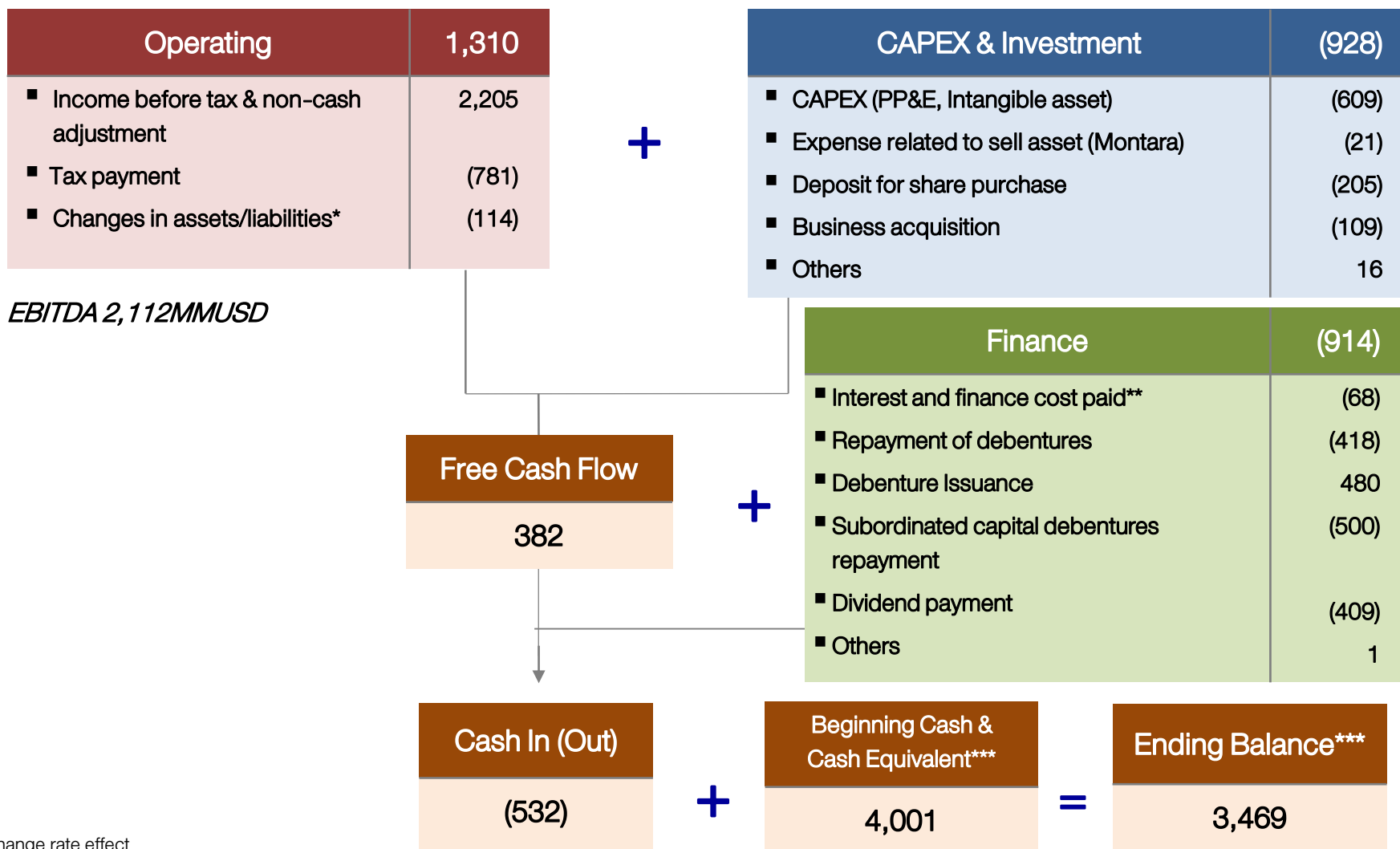
** Excludes hybrid bonds

The formulas for calculating ratios are provided in the supplementary section for your reference

Cash Flows : January – June 2019

Healthy operating cash flow with net cash position

Unit : MMUSD



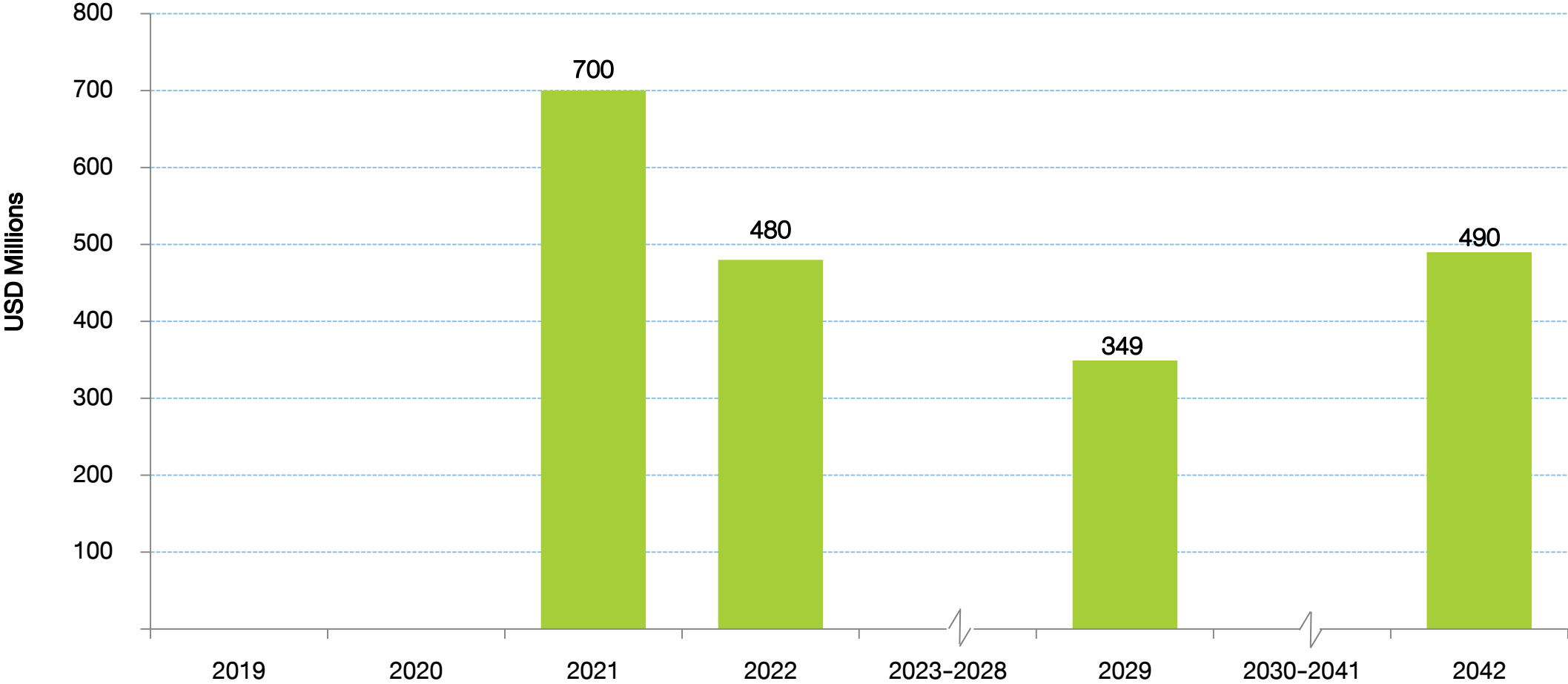
Note: * Net of foreign exchange rate effect

** Net of interest received

*** Include Short-term Investment (Fixed deposit > 3 months)

Debt Maturity Profile

As of June 2019



Note: Excludes Hybrid bonds
Unit: USD Millions or equivalent after cross currency swap

Sustainable development

Pursue long-term growth with social and environmental wellness

MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM

2018 DJSI Listed Company

PTTEP has been selected as a member of the 2018 Dow Jones Sustainability Indices (DJSI) in the DJSI World Oil and Gas Upstream & Integrated Industry for its fifth consecutive year.



Proven business integrity

SET Sustainability Award 2018 – Outstanding Category
The Stock Exchange of Thailand (SET)

ASEAN Corporate Governance (CG) Awards
ASEAN CG Scorecard

Thailand's Strongest Adherence to Corporate Governance (ranked second)
Alpha Southeast Asia Magazine 2018



FTSE4Good

FTSE4Good Emerging Index 2019

PTTEP becomes a constituent of the FTSE4Good Emerging Index 2019 for the third consecutive year



Exemplary social contributor

Top Corporate Social Responsibility Advocates winner
The Asia Corporate Excellence & Sustainability Awards 2018

Health Promotion Category for PTTEP LKC Free Health Service Program (Free Clinic Project)
The Asia Responsible Enterprise Awards 2018

Thailand's Best Strategic Corporate Social Responsibility (ranked first)
Alpha Southeast Asia Magazine 2018

Green driver to environment

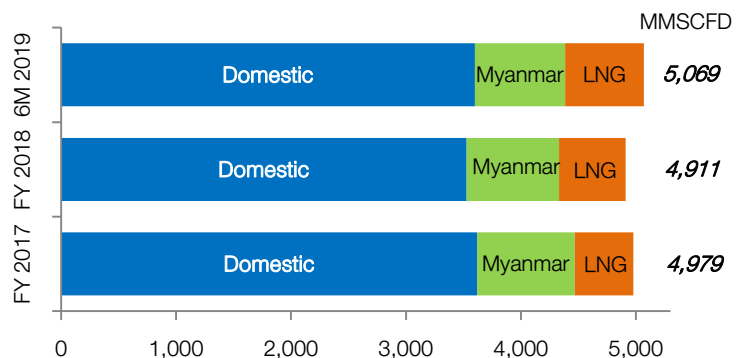
Green Leadership Category for T.M.S. Underwater Learning Site Project
The Asia Responsible Enterprise Awards 2018

The Excellent Level (G-Gold) of the Green Office Award 2017
The Ministry of Natural Resources and Environment

Water A List Award
Carbon Disclosure Project (CDP)

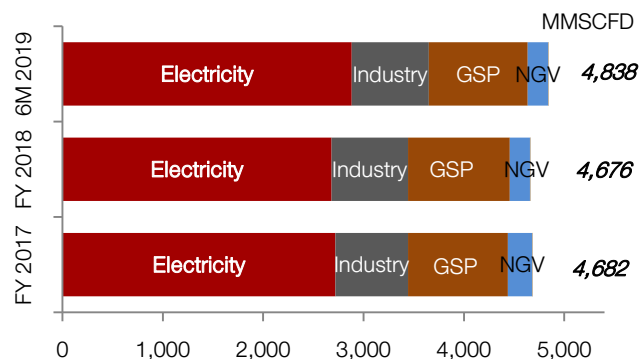
Thailand Energy Overview

Natural Gas Supply



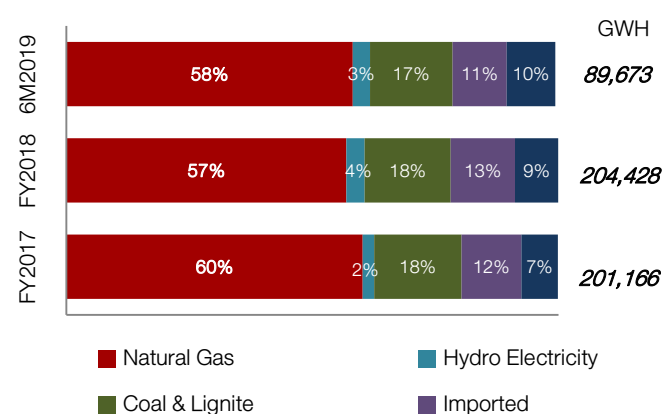
Slight decline from Myanmar piped gas imports due to natural decline and significant growth in LNG import

Natural Gas Consumption



Source: EPPO

Electricity Generation



Exchange Rate Movement (THB/USD)



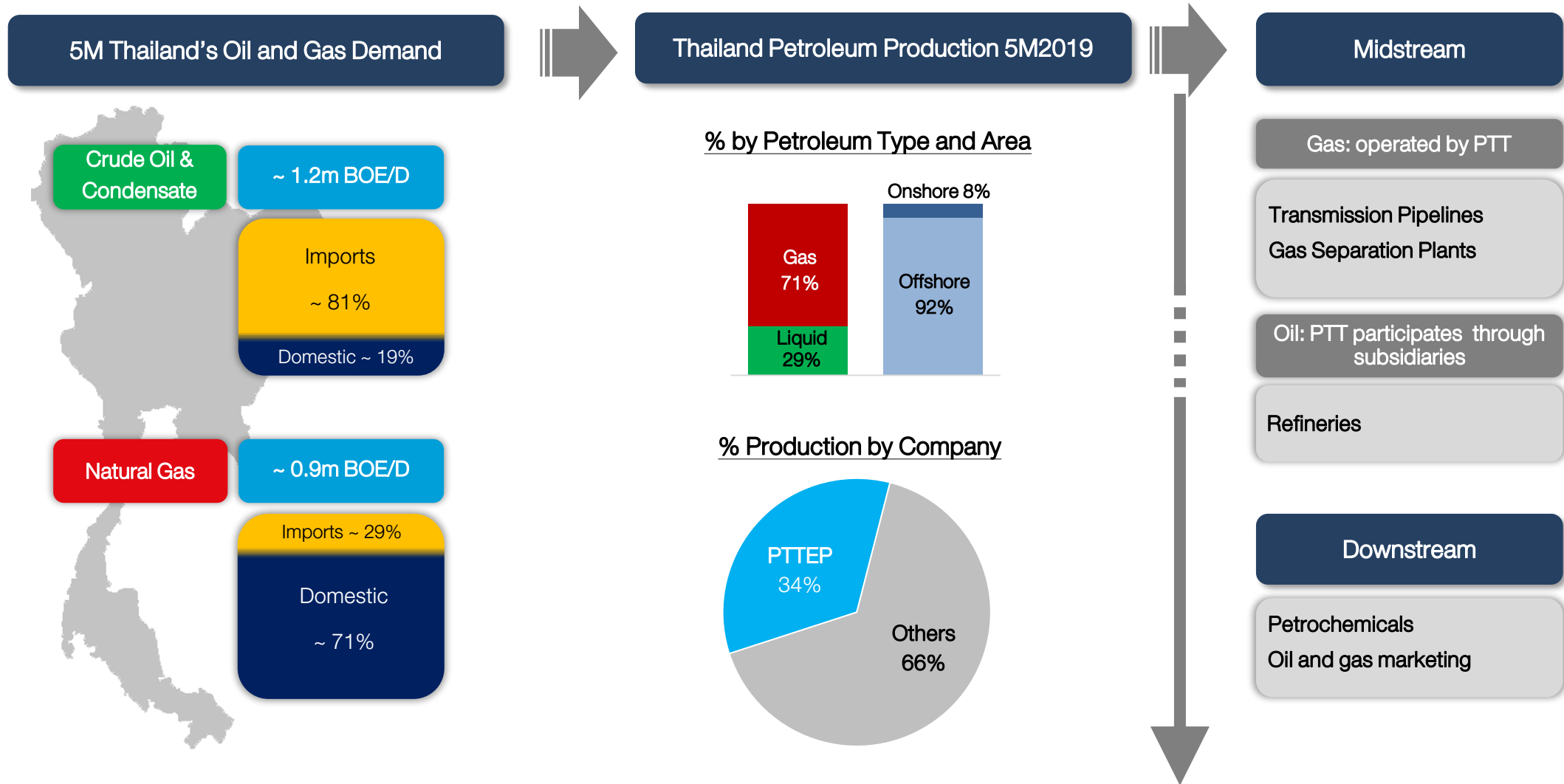
Consensus on the exchange rate mostly depends on

- Tendency on FED to lower interest rate
- Trade war between the US and China
- Slowdown of the U.S economy
- BOT's direction on monetary policy
- Slow recovery in Tourism growth

Source: Bank of Thailand, Bloomberg
Forecast based on Bloomberg Consensus as of 30 July 2019

Thailand's Energy Value Chain

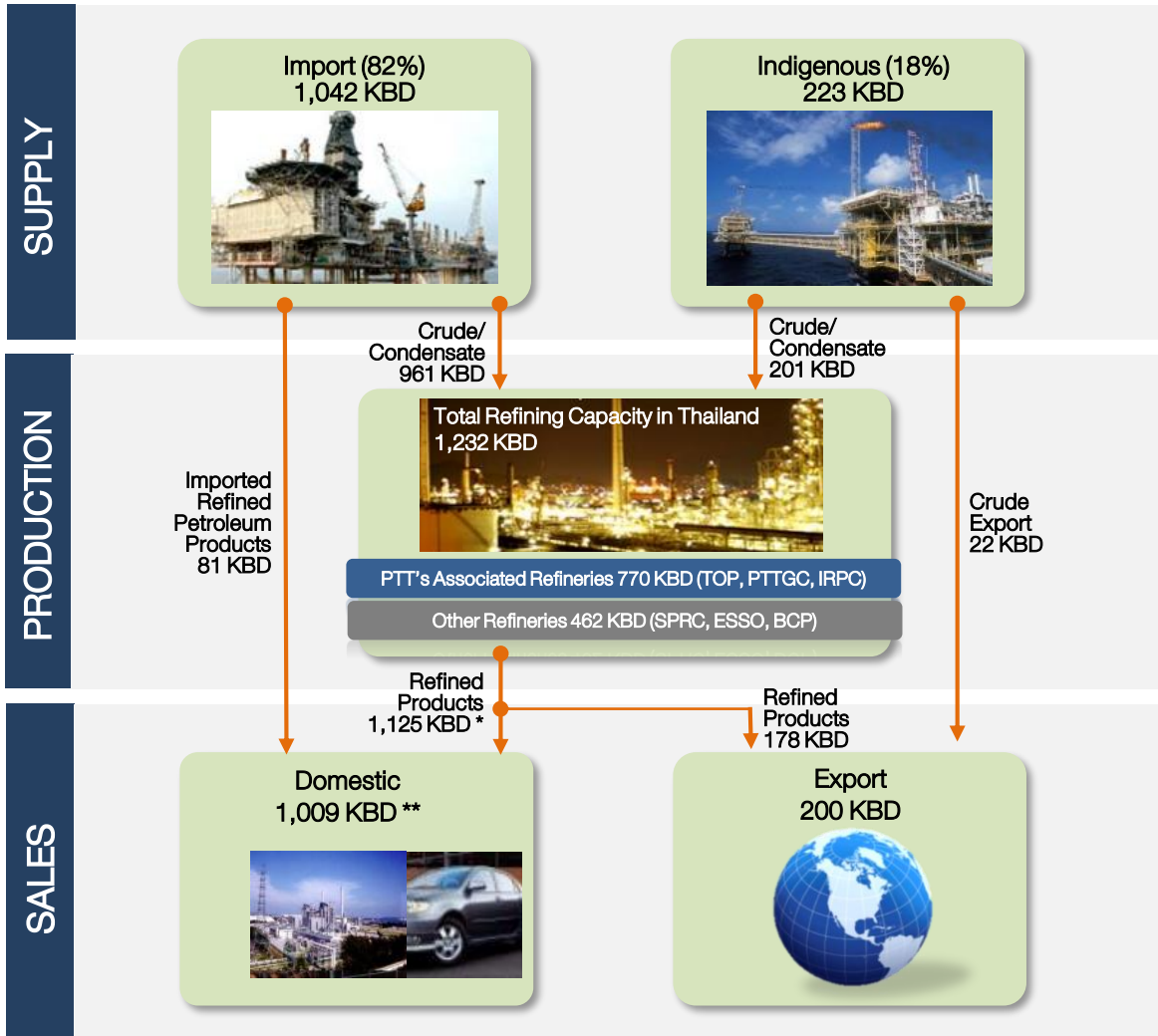
PTTEP contributes almost 1/3 of Thailand's petroleum production



Source: Energy Policy and Planning Office (EPPO) and Department of Mineral Fuels (DMF)

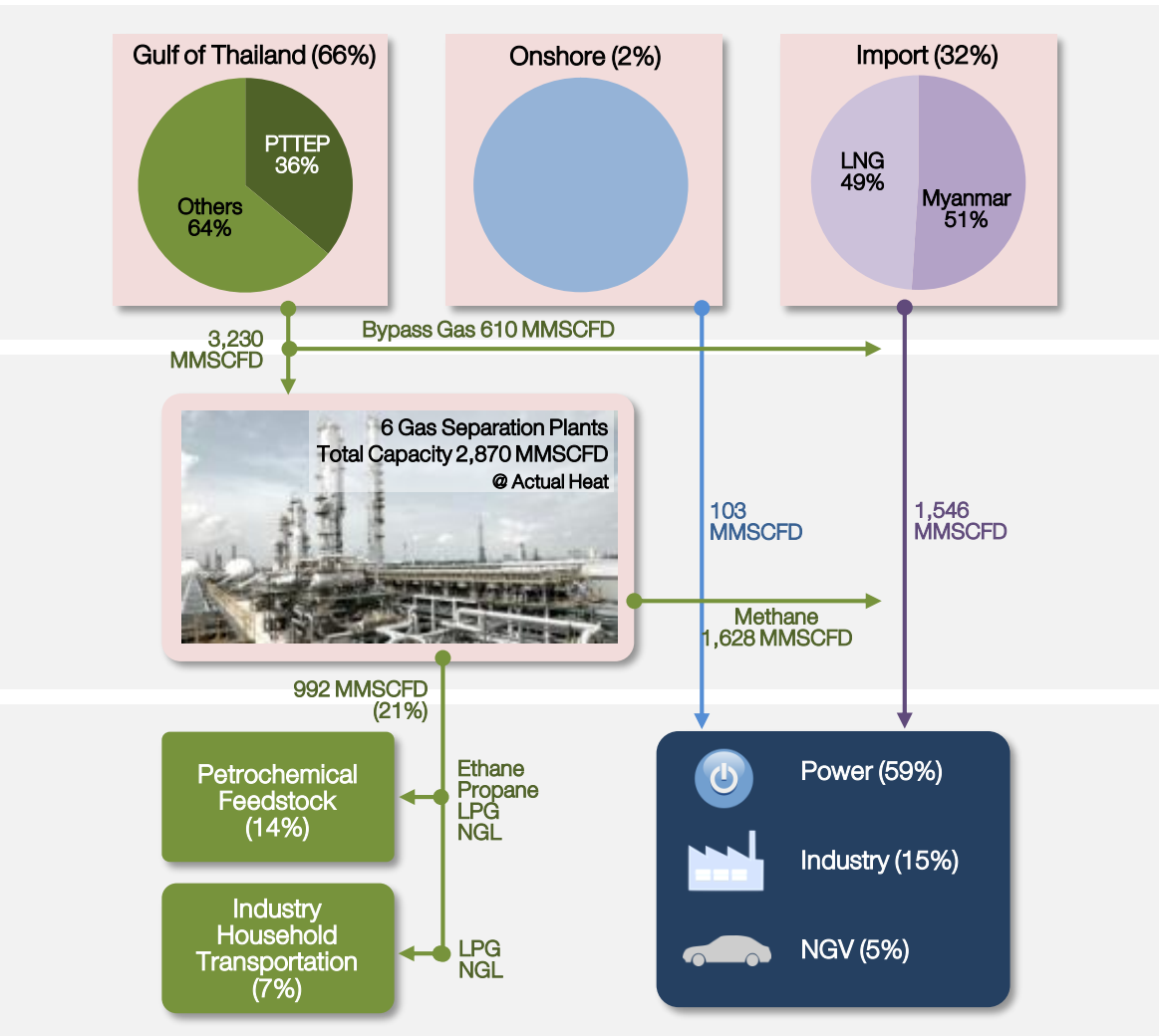
Oil Balance***

Maintains stability supply through adequate refining capacity



Natural Gas Balance****

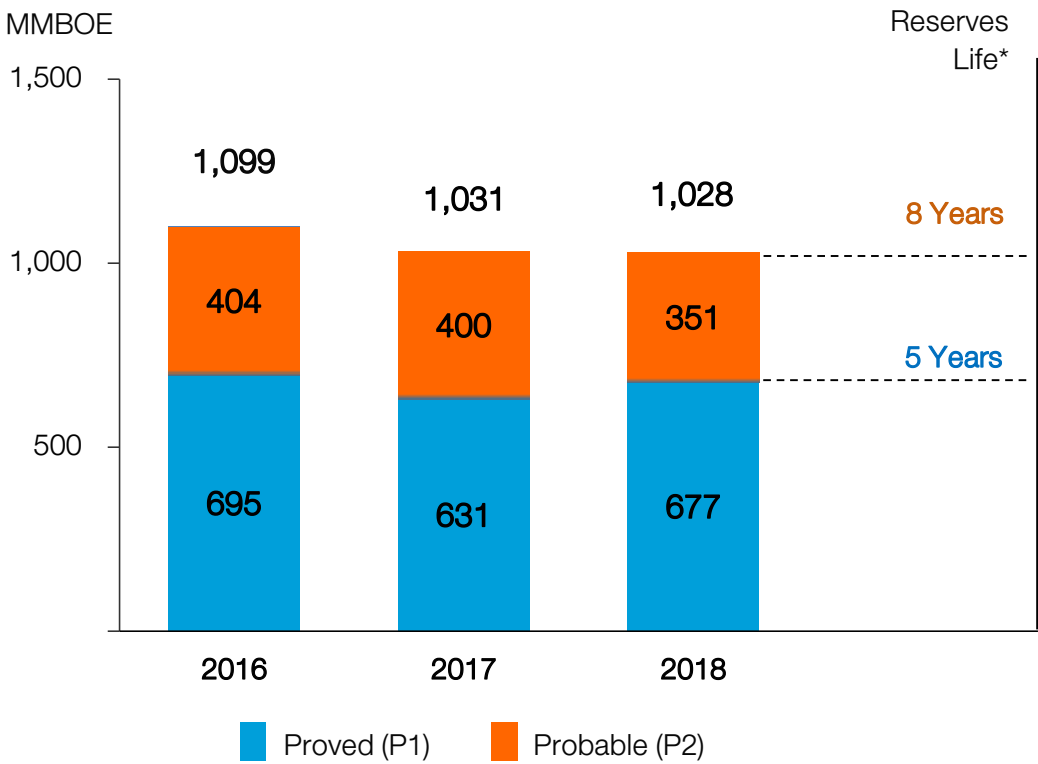
Main driver of the Thailand economy



Source: PTT
Remark: * Refined product from refineries = 1,025 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 100 KBD
** Not included Inventory
*** Information as of 5M19
**** Information as of 6M19
MMSCFD @ Heating Value 1,000 Btu/ft³

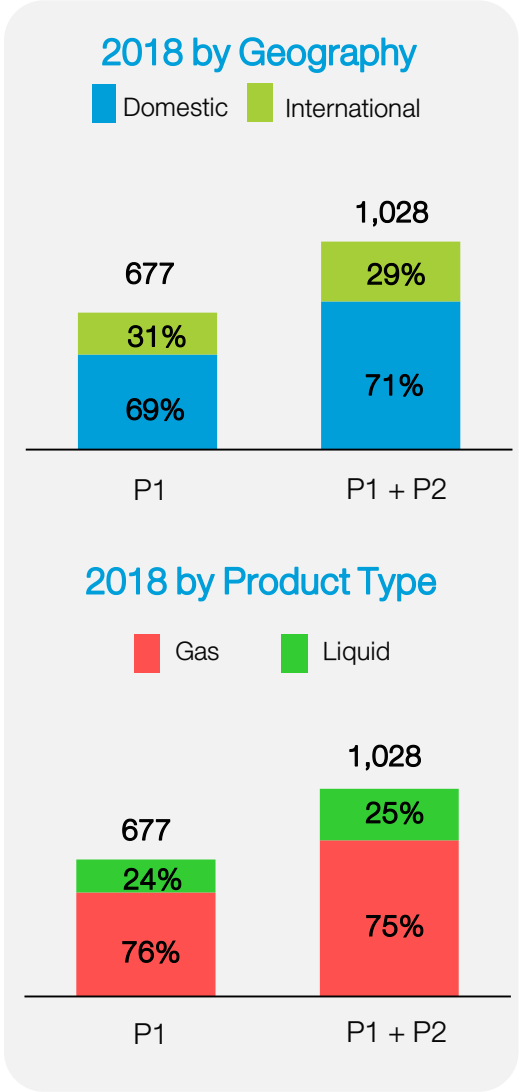
Reserves at the Year-end 2018

Maintained reserves life with majority of reserves base in SEA



5-Year Average Proved Reserves Replacement Ratio (RRR)

2016	2017	2018
0.57x	0.58x	0.74x



* Based on total production of natural gas, condensate, and crude oil (including LPG) of 359 KBOED for the year ended December 31, 2018

Exploration Plan in 2019

Exploration activities to accelerate resources discovery

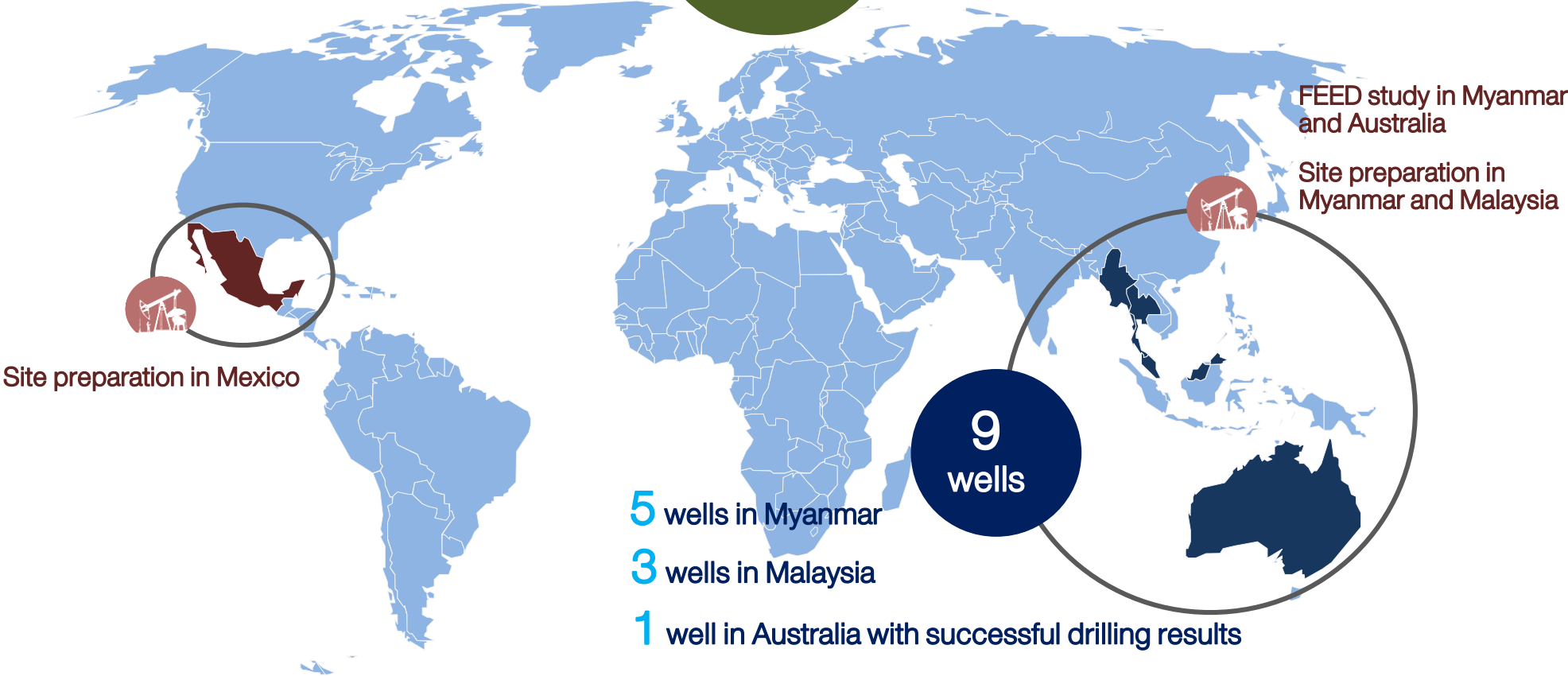


CAPEX
191 MMUSD

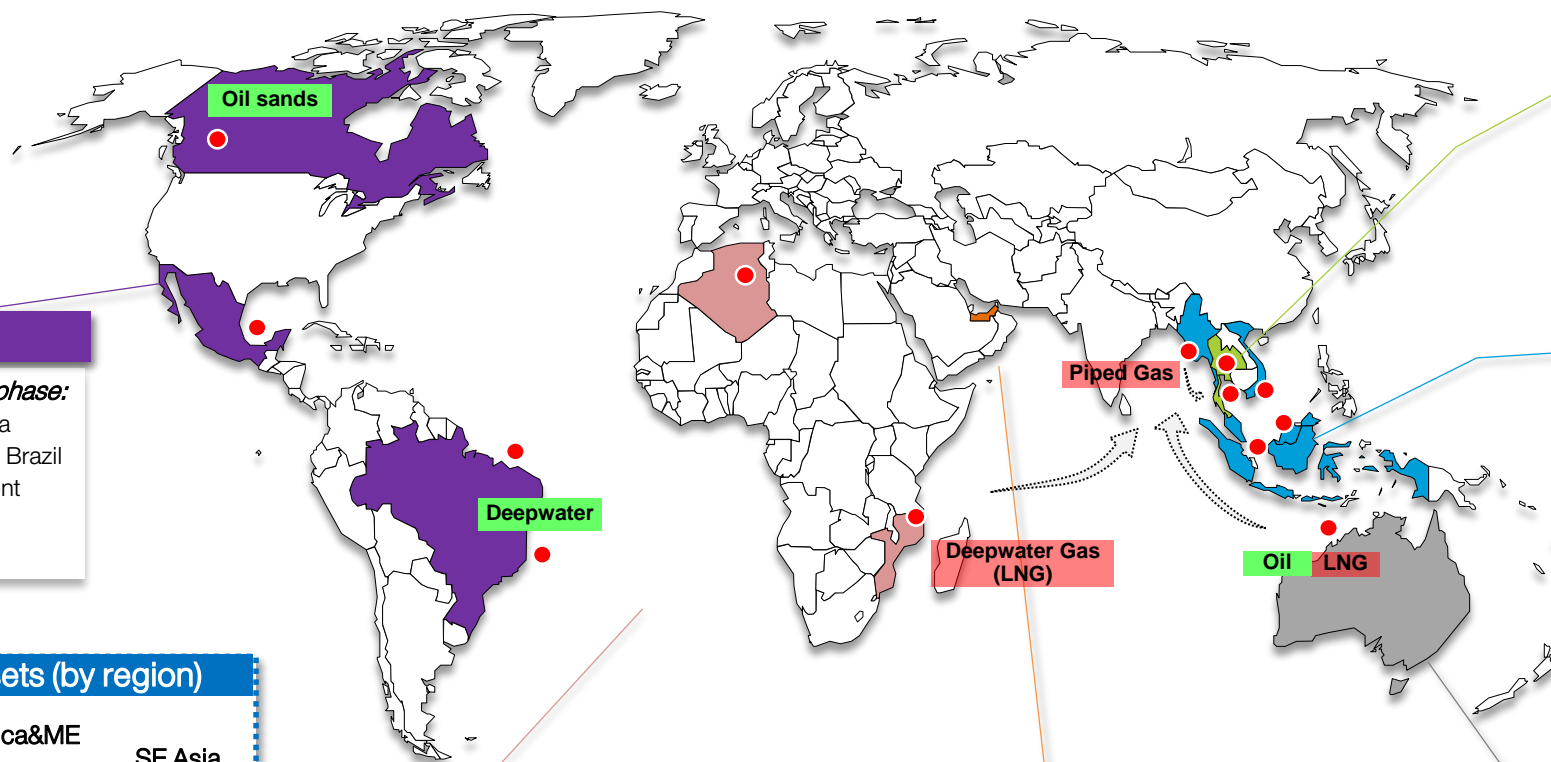
2019 Budget

235
MMUSD

OPEX
44 MMUSD



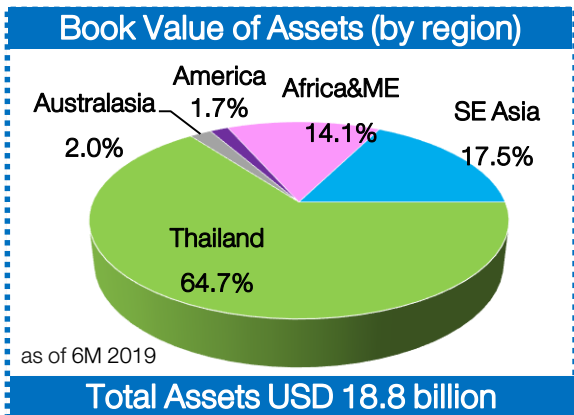
Note: Excludes exploration activities of producing assets around 120 MMUSD



North & South America

Opportunities in an early phase:

- Oil Sand project in Alberta
- Deepwater exploration in Brazil and Mexico with prominent and prudent operators



Thailand

PTTEP's core production base

- 80% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1
- The PSCs signing of Bongkot (G2/61) and Erawan (G1/61) on 25 February 2019

Southeast Asia

Second heartland to PTTEP

- 19% of total sales volume
- Myanmar being most important with gas production mostly supplied into Thailand
- Other producing assets in Vietnam (oil) and Indonesia (gas)
- Acquiring 100% of Murphy's business in Malaysia with completion on 10 July 2019

Africa

An area for growth, key projects include:

- Producing: Algeria's Bir Seba oil field with current flow rate of approximately 18 KBPD
- Development : Algeria's Hassi Bir Rakaiz
- Pre-development: Mozambique, target FID Q2 2019

Middle East

First presence in UAE:

- Awarded 2 new offshore exploration blocks in Jan 2019
- Partnered with experienced operator, ENI

Australasia

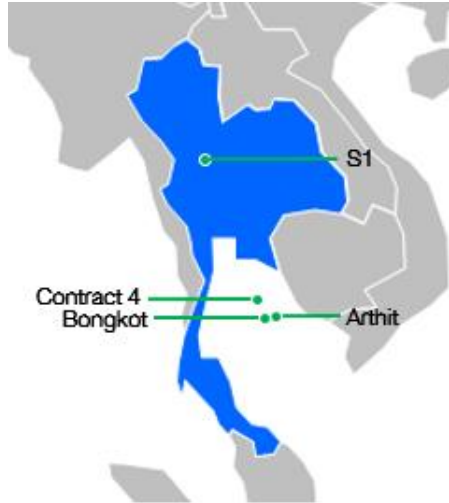
Potential gas development

- Sizable undeveloped gas resources in Timor Sea
- Completion of Montara Divestment

Thailand and other Southeast Asia

Coming home to maintain strong foundation with full expertise

Thailand



● Production / Ramp-up Projects

Bongkot (66.6667% WI)

- Average natural gas and condensate sales volume of 780 MMSCFD and 22 KBPD in 6M2019

S1 (100% WI)

- The largest onshore crude oil production field in Thailand with 6M2019 average crude oil sales volume of 31 KBPD

Arthit (80% WI)

- Average sales volume in 6M2019 was 228 MMSCFD of natural gas and 11 KBPD of condensates

Contract 4 (60% WI)

- Average sales rate of 410 MMSCFD for natural gas and 17 KBPD for condensate in 6M2019

Myanmar



- 3 producing gas fields supplying gas to both Thailand and Myanmar: Yadana, Yetagun, and Zawtika
- Operate Zawtika project, brought online in March 2014 with current gas supply of 311 MMSCFD in 6M2019
- Significant exploration acreage both onshore and offshore in the Moattama Basin

Project Status

Producing

- Yadana (25.5% WI)
- Yetagun (19.3% WI)
- Zawtika (80% WI)

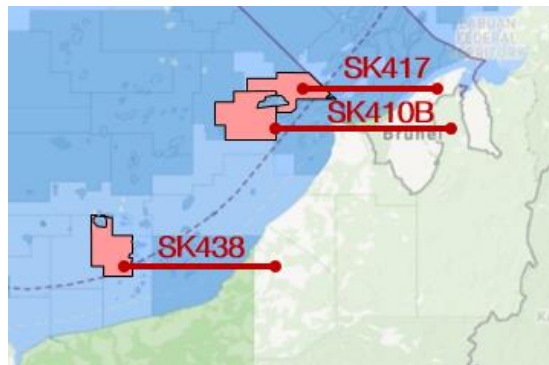
Appraisal

- M3 (80% WI)

Exploration

- MOGE 3 (75% WI)
- M11 (100% WI)
- MD-7 (50% WI)

Sarawak Basin, Malaysia



PTTEP's Block: SK410B (42.5%), SK417 (80%) and SK438 (80%) with operatorship

Location: Sarawak Basin, Malaysia

Characteristic: Shallow-water with low operational risk

Exploration Strategy:

- Expect exploration drilling activities during 2019-2021
- "Cluster Model" synergy operations within basin to optimize costs
- In place production infrastructure in nearby area

Note: WI – working interest

Summary of Terms from Bidding Result of Bongkot and Erawan and PSC Model (1/2)

Price Formula

Pricing Formula: $Pr_{(y)} = Pc \times M_{(y)} \times \left(a \frac{PPI_{(y)}}{PPI} + \frac{I_{(y)}}{I} \left\{ b \frac{OM_{(y)}}{OM} + c \frac{DB_{(y)}}{DB} + d \right\} \right)$

$DB_{(y)} < 52$	$M = 0.91 + 0.11 \frac{DB_y}{52}$
$52 \leq DB_{(y)} < 100$	$M = 1.02 - 0.15 \frac{DB_y - 52}{48}$
$DB_{(y)} > 100$	$M = 0.22 + 6.44 \times \frac{1}{\sqrt{DB_y}}$

Whereas:

Pr : Gas Price
Pc : Price Constant
I : Exchange rate
PPI : Producer Price Index
OM: PPI for Oil Machinery and Tools
DB: Dubai oil price

Base year numbers (2016): PPI = 101.4167 I = 35.3 THB/USD OM = 214.88 DB = 41.27\$/BBL

$$Pr_{(y)} = 116 \times M_{(y)} \times \left(0.25 \frac{PPI_{(y)}}{101.4167} + \frac{I_{(y)}}{35.3} \left\{ 0.3 \frac{OM_{(y)}}{214.88} + 0.4 \frac{DB_{(y)}}{41.27} + 0.05 \right\} \right)$$

Terms

	G2/61 (Bongkot)	G1/61 (Erawan)
Price Constant	116 THB per MMBTU	116 THB per MMBTU
Contractor's Profit Split	30%	32%
Bonuses	Signature Bonus* 1,050 MMTHB Production Bonus** 1,575 MMTHB Supporting Contribution 7 MMTHB Other benefits 685 MMTHB	Signature Bonus* 1,050 MMTHB Production Bonus** 1,575 MMTHB Supporting Contribution 7 MMTHB Other benefits 35 MMTHB
Thai Employee Ratio	99%	98%
Facility Bonus***	175 MMTHB	350 MMTHB

Remark of payment terms:

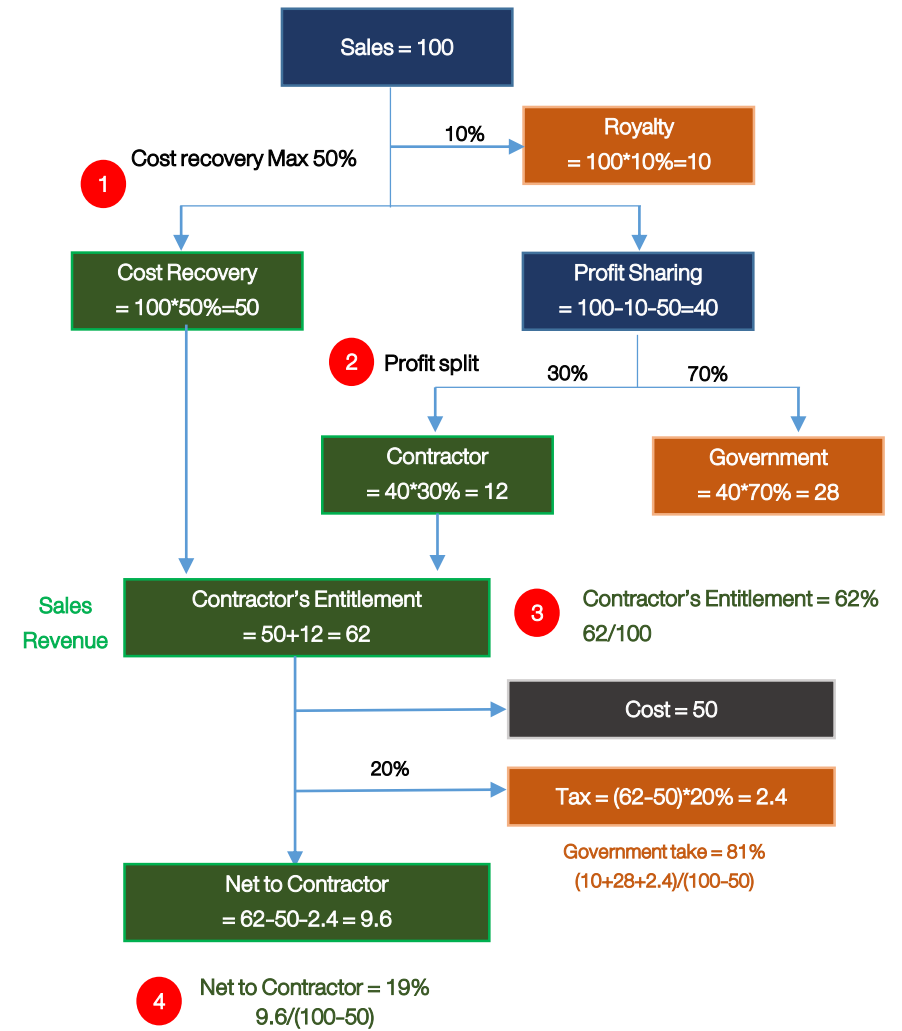
* No later than 10 working days prior to the PSC signing date

** Each time the cumulative production/sales reaches 100, 200 and 300 MMBOE

*** Equally separate into 3 payments by 24th April of every year from 2022

Source: Press release from Department of Mineral Fuels (13 December 2018) and TOR

PSC Model



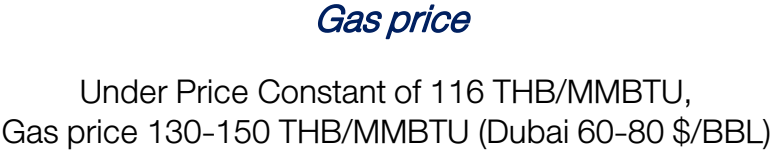
*Assumption bases on field life, cost can be fully recovered

Bongkot and Erawan: Thailand Champion in Domestic Gas Supply (2/2)

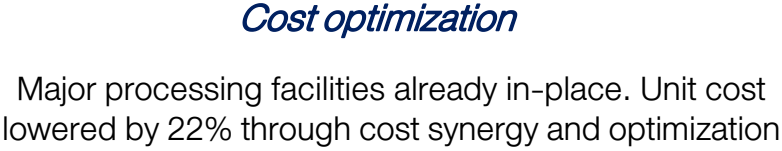
Achievable cost optimization to sustain target return



With new gas price, we can achieve target IRR



Unit: THB/MMBTU



Enablers of cost synergy and optimization through economy of scale and technology improvement



Wellhead Platform

- Lean design standardization
- Volume bundling & contracting strategy
- Platform topside and facility reuse



Drilling & Well

- Implement factory drilling
- Utilize drilling rig with GoT-fitted specifications
- Optimize drilling rig & service contracts across GoT



Logistics

- Synergy and optimize marine and aviation fleets across GoT
- Procurement strategy



Decommissioning

- Innovative solutions / technologies
- Economy of Scales

Vietnam and Indonesia

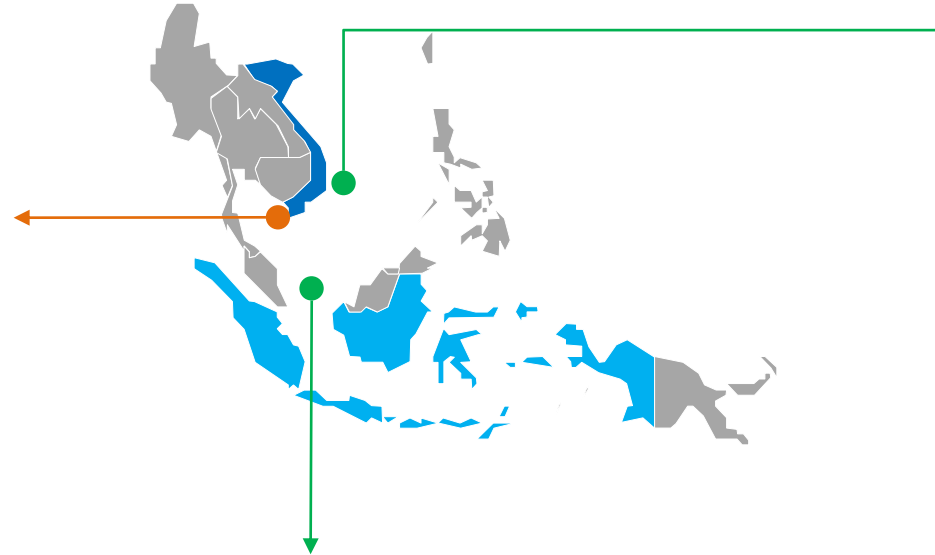


Southwest Vietnam

- Vietnam B & 48/95 (8.5% WI)
- Vietnam 52/97 (7% WI)

- Field Development Plan was approved by Government
- The project is currently in the negotiation process on commercial terms to put forward FID
- First production target by end of 2022, and ramp up to full capacity of 490 MMSCFD

- Production projects
- Pre sanction projects



Vietnam 16-1 (28.5% WI)

- Average sales volume of crude oil was 18 KBPD in 6M2019
- The project is preparing further production drilling plan aiming to maintain production plateau.

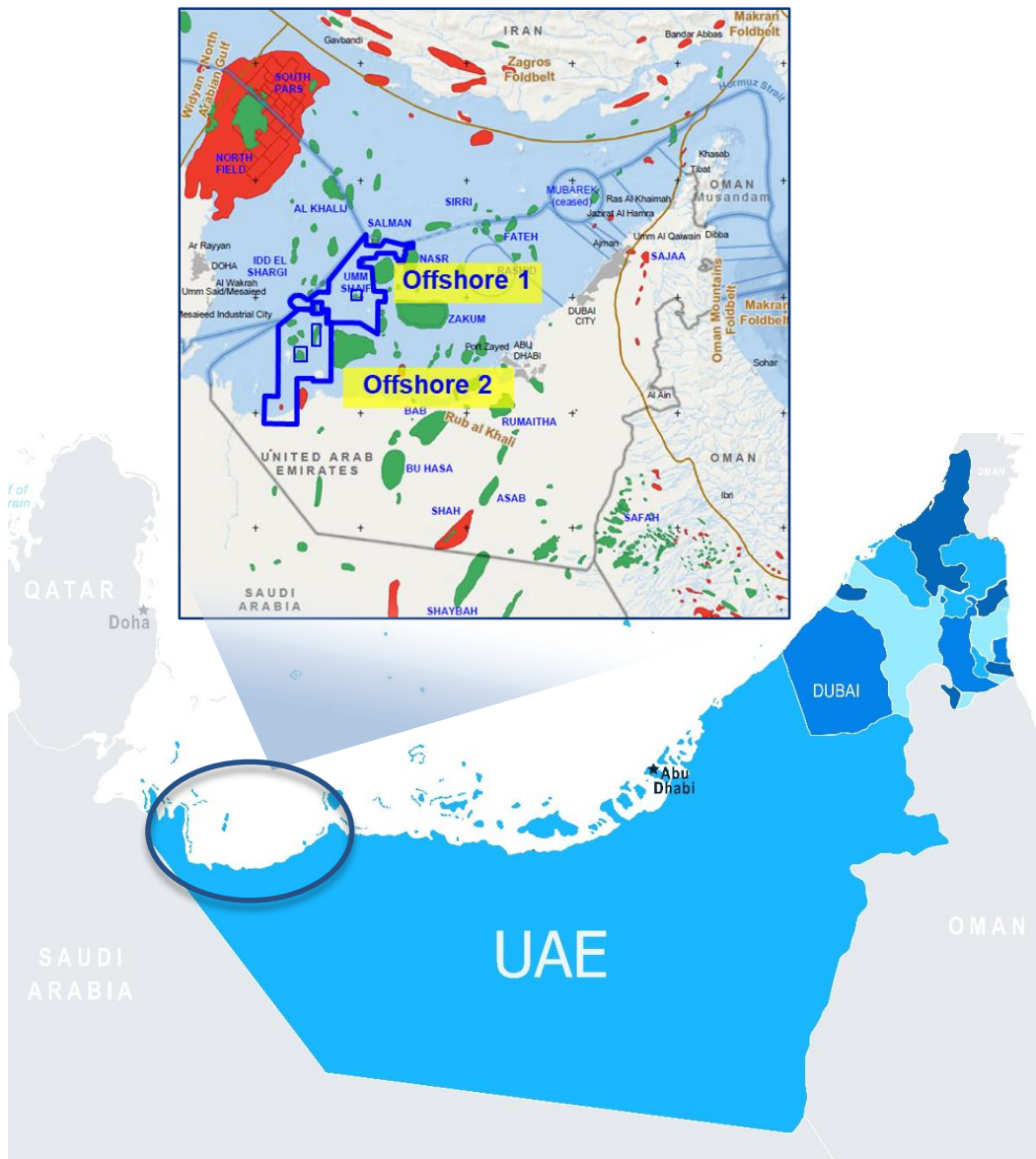


Natuna Sea A (11.5% WI)

- Average sales volume of natural gas was 193 MMSCFD in 6M2019

The Middle East : United Arab Emirates

“Partnering” to JV with prudent operators in prolific low cost area



Project Overview		
PTTEP's Block	Abu Dhabi Offshore 1	Abu Dhabi Offshore 2
Location	North-west of Abu Dhabi Emirates, United Arab Emirates	
Characteristics	Shallow water	
Partners (exploration phase)	ENI 70% (Operator) PTTEP 30%	
Exploration Strategy	<ul style="list-style-type: none">• Joined hand with prudent operators• UAE still has high potential prospective resources with significant sizeable discoveries	

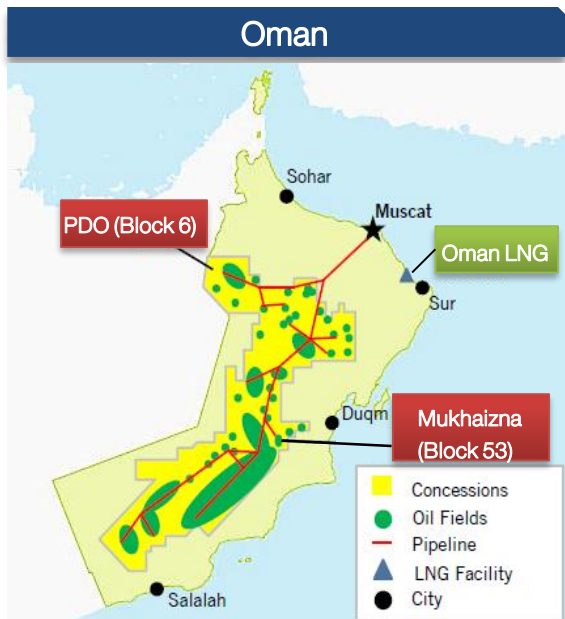


The award of Abu Dhabi Offshore Exploration Blocks 1 & 2 on 12th January 2019

Acquisition of Partex Holding B.V.

Access to the largest oil asset in Oman and world-class Midstream Complex

Oman



PDO (Block 6)

- Largest asset covering around 1/3 of the country
- Long-life asset, produced only 15% of reserves in-place
- Multi-field oil production: 610,000 BPD (70% of Oman production)
- Experienced and reputable partners



Mukhaizna (Block 53)

- Largest single onshore producing field in Oman
- Oil production: 120,000 BPD (13% of Oman production)
- Strong and experienced operator

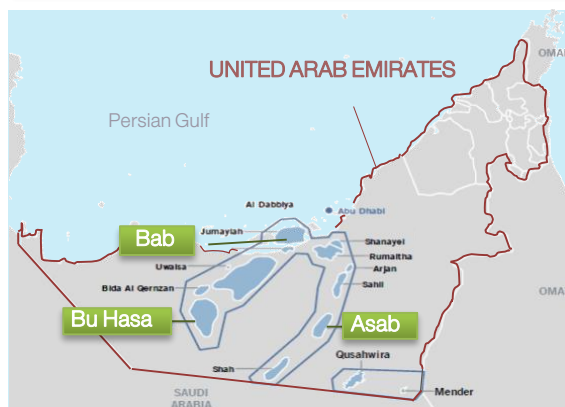


Oman LNG

- The only LNG facility in Oman
- Processing capacity 10.4 MTPA
- Contracted LNG sales to international buyers: Japan and South Korea

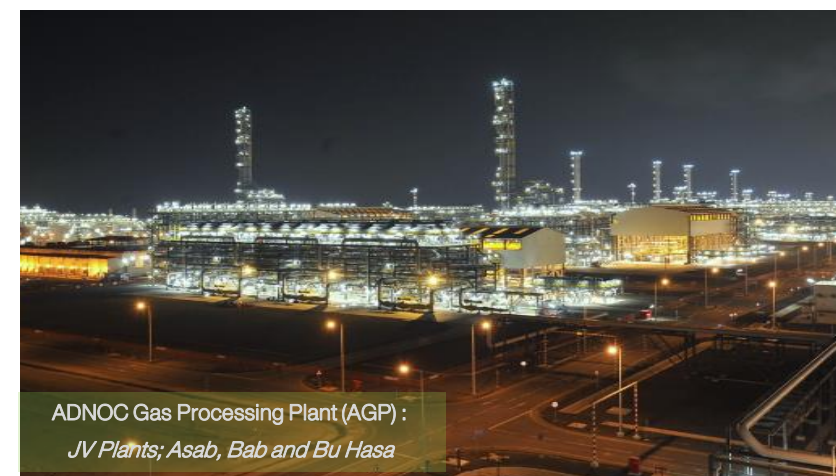


UAE



ADNOC Gas Processing (AGP)

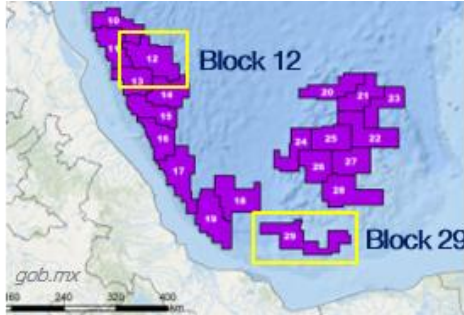
- One of the largest gas processing complexes in the world (total capacity of 8 BCFD)
JV: 3 plants with capacity of 1.2 BCFD
Adnoc: 2 plants with capacity of 6.9 BCFD
- Essential to Abu Dhabi and UAE's economy
- Sizeable volumes of Propane, Butane and Naphtha offtake
- Strong and experienced partners



ADNOC Gas Processing Plant (AGP) :
JV Plants; Asab, Bab and Bu Hasa

-- Entry into high potential petroleum province at exploration phase --

Gulf of Mexico, Mexico



PTTEP's Block: Block 12 (20%) and Block 29 (16.67%), as non-operating partner

Location: Mexican Ridges Basin for Block 12 and Campeche Basin for Block 29

Characteristic: Deep-water with high petroleum potentials and attractive fiscal regime

Exploration Strategy:

- Joined hand with prudent operators being Petronas and Repsol
- Mexico still has high potential prospective resources with significant sizeable discoveries

Deep Water Brazil



Barreirinhas AP1

- Farm-in 25% from BG Group in 2014
- Operated by Shell Brasil (65% interest)
- Four offshore exploration blocks: BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254
- Completed 3D seismic activities and is in the process of assessing the petroleum potential

BM-ES-23

- Acquired 20% interest from Shell in Q3 2014
- Partnered with Petrobras (65%, operator) and INPEX (15%)

Canada Oil Sands



Project Overview

- Operates 100% interest of the Thornbury, Hangingstone and South Leismer (THSL) areas (exploration and appraisal phase)
- Potential large resource base with over a billion barrel
- In Q3 2017, the Company revised the project's development plan which involves delaying the project's Final Investment Decision, to reflect results from the assessment of the industry and commercial feasibility studies

LNG Value Chain Investment : MLNG Train 9


First step into midstream LNG business in strategic area of focus

10% Investment in MLNG Train 9 by PTT Global LNG....

....continue to look for more LNG opportunities globally



MLNG Train 9 – Overview

Location	Bintulu, Sarawak, Malaysia		
Asset	Liquefaction Train 9 Tank 7		
Phase	Commercial: Jan 2017		
Capacity	3.6MTPA		
Contract Life	20 years		
Partners (subject to closing)	Petronas	80%	
	JX Nippon	10%	
	PTT Global LNG	10%	

Investment Rationales

- Capture opportunity from increasing LNG demand as a supplement to Thailand gas production
- Venture into midstream LNG as a mean to secure LNG supply and growth of PTT and PTTEP, as well as capture value added along with LNG value chain
- Low risk and highly market secured opportunity
 - Highly experienced operator
 - Already commenced commercial production with immediate revenue stream
- In vicinity of future upstream opportunities in focus area – offshore Sarawak

New Business Opportunities

Expand value chain, create innovation and step towards long-term sustainability



"Integrated Energy Solution"



E&P

+



Pipeline

+



Power Plant

- Enhance value of existing assets in Myanmar e.g. Zawtika, M3
- Support Myanmar pipeline infrastructure development
- Partner with Independent Power Producer (IPP)



AI AND
ROBOTICS
VENTURES

"Cutting Edge Technology for E&P and more"

UAV



Aerial inspection service:

- Flare Tower
- Telecommunication Tower
- Tank inspection

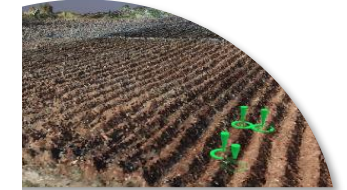
AUV



Subsea Inspection & Surveillance:

- Pipeline and structural inspection
- Geophysical survey
- Gas leak survey

Non E&P



Focused Sectors:

- Agriculture
- Environmental
- Security

Remark: UAV is Unmanned Aerial Vehicle. AUV is Autonomous Underwater Vehicle.

	Project	Status*	Phase	PTTEP's Share	Partners (as June 2019)	6M2019 Average Sales Volume **		2019 Key Activities
						Gas	Oil and Other	
Thailand and JDA								
1	Arthit	OP	Production	80%	Chevron MOECO16%4%	228 MMSCFD	Condensate: 11 k BPD	<ul style="list-style-type: none">Ensure gas deliverability level at DCQ***Install wellhead platformsDrill development wells
2	B6/27	OP	Production	100%		-	-	
3	B8/32 & 9A		Production	25%	Chevron MOECO16.71%KrisEnergy4.63%Palang Sophon2%	75 MMSCFD	Crude: 23 k BPD	<ul style="list-style-type: none">Drill development wellsPerform waterflood activities
4	Bongkot	OP	Production	66.6667%	TOTAL33.3333%	780 MMSCFD	Condensate: 22 k BPD	<ul style="list-style-type: none">Maintained production level as plannedDrill development wellsAwarded as a sole operator under PSC (after concession-end in 2022/2023)
5	Contract 3 (Formerly Unocal III)		Production	5%	Chevron MOECO71.25%23.75%	605 MMSCFD	Crude: 17 k BPD Condensate: 22 k BPD	<ul style="list-style-type: none">Drill development wellsPrepare for decommissioning activitiesAwarded as a operator for Erawan field (Contract 1, 2 and 3) under PSC (after concession-end in 2022)
6	Contract 4 (Formerly Pailin)		Production	60%	Chevron MOECO35%5%	410 MMSCFD	Condensate: 17 k BPD	<ul style="list-style-type: none">Ensure gas deliverability level at DCQ***Drill development wellsIn process of pre-development of Ubon field
7	E5		Production	20%	ExxonMobil80%	9 MMSCFD	-	<ul style="list-style-type: none">Ensure gas deliverability level at DCQ***
8	G4/43		Production	21.375%	Chevron MOECO51%21.25%Palang Sophon6.375%	1.5 MMSCFD	Crude: 3 k BPD	<ul style="list-style-type: none">Drill development wellsPerform waterflood activities
9	G4/48		Production	5%	Chevron MOECO71.25%23.75%	3 MMSCFD	Crude: 0.8 k BPD	<ul style="list-style-type: none">Drill development wells
10	L53/43 & L54/43	OP	Production	100%		-	Crude: 1.8 k BPD	<ul style="list-style-type: none">Maintain production plateauPerform reservoir management and waterflood activities
11	PTTEP1	OP	Production	100%		-	Crude: 252 BPD	<ul style="list-style-type: none">Maintain production plateauPerform reservoir management and waterflood activities
12	S1	OP	Production	100%		9 MMSCFD	Crude: 31 k BPD LPG: 0.2 k MT/D	<ul style="list-style-type: none">Drill development wellsEnhance oil recovery program includes waterflood, hydraulic fracturing and artificial lift

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

** Sales volume stated at 100% basis.

*** DCQ = Daily Contractual Quantity

	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of June 2019)</i>		6M2019 Average Sales Volume **		2019 Key Activities
							Gas	Oil and Other	
Thailand and JDA									
13	Sinphuhorm	OP	Production	55%	Apico**** ExxonMobil	35% 10%	88 MMSCFD	Condensate: 289 BPD	<ul style="list-style-type: none">• Ensure gas deliverability• Improve recovery from infill drilling
14	L22/43	OP	Production	100%			-	-	<ul style="list-style-type: none">• Maintain production operation
15	MTJDA	JOC	Production	50%	Petronas-Carigali	50%	345 MMSCFD	Condensate: 10 k BPD	<ul style="list-style-type: none">• Drill exploration and development wells
16	G9/43	OP	Exploration	100%					
17	G1/61 (Erawan)	OP	Exploration	60%	MP G2 (Thailand) Limited	40%			
18	G2/61 (Bongkot)	OP	Exploration	100%					
Overseas									
16	Vietnam 9-2	JOC	Production	25%	PetroVietnam SOCO	50% 25%	14 MMSCFD	Crude: 3.6 k BPD	<ul style="list-style-type: none">• Maintain production level• Perform well intervention program
17	Vietnam 16-1	JOC	Production	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	7 MMSCFD	Crude: 18 k BPD	<ul style="list-style-type: none">• Maintain production level• Drill development wells and water injection well• Upgrade gas lift system
18	Natuna Sea A		Production	11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	193 MMSCFD	Crude: 1.4 k BPD	<ul style="list-style-type: none">• Well intervention program to secure Gas Deliverability• Drill development wells
19	Yadana		Production	25.5%	TOTAL Chevron MOGE	31.24% 28.26% 15%	813 MMSCFD	-	<ul style="list-style-type: none">• Drill infill wells• Perform 3D seismic activities• Ensure gas deliverability level at DCQ***
20	Yetagun		Production	19.3178%	Petronas-Carigali MOGE Nippon Oil PC Myanmar (Hong Kong)	30.00140% 20.4541% 19.3178% 10.90878%	117 MMSCFD	Condensate: 2.3 k BPD	<ul style="list-style-type: none">• Maintain production level• Drill exploration and development wells• Perform 3D seismic activities
21	Zawtika (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE)	20%	311 MMSCFD	-	<ul style="list-style-type: none">• Drill 3 exploration wells• Drill development wells• Perform 3D seismic activities• Prepare to Install wellhead platforms
22	Algeria 433a & 416b (Bir Seba)	JOC	Production	35%	PetroVietnam Sonatrach	40% 25%	-	Crude: 3.1 k BPD <i>(net entitlement)</i>	<ul style="list-style-type: none">• Drill development wells• Plan for BRS Phase 2 oil field development

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

** Sales volume stated at 100% basis except for Algeria 433a & 416b

*** DCQ = Daily Contractual Quantity

**** PTTEP holds indirectly and directly 66.8% participating interest in Sinphuhorm Project. APICO also holds 100% participating interest in Block L15/43 and Block L27/43.

	Project	Status*	Phase	PTTEP's Share	Partners (as of June 2019)	2019 Key Activities
Overseas						
1	Malaysia	OP (except Gumusut-Kakap (GK) in Sabah K)	Production/ Exploration/ Development	6.4-80% (varied by permits)		<ul style="list-style-type: none"> Transition plan for operation of the newly acquired blocks Sarawak SK410B - Drilled 1 exploration well with multi TCF discovery Sarawak SK417, SK438- Prepare to drill exploration and appraisal wells PM407 and PM415 - Signed PSC with Petronas on 21/03/2019
4	Myanmar M3	OP	Exploration	90%-100% (varied by permits)	MOECO 20%	<ul style="list-style-type: none"> Negotiate the commercial framework with the Myanmar government Perform Front End Engineering Design (FEED study)
5	Myanmar M11	OP	Exploration	8.5%		<ul style="list-style-type: none"> Drill first exploration well to prove up recoverable resources
6	Myanmar MD-7	OP	Exploration	24.5%	TOTAL 50%	<ul style="list-style-type: none"> Drill first exploration well to prove up recoverable resources
7	Myanmar MOGE 3	OP	Exploration	100%	Palang Sophon 10% MOECO 10% WinPreciousResources 2.5%	<ul style="list-style-type: none"> Drill 3 exploration wells
8	Vietnam B & 48/95		Exploration	25%	PVN 65.88% MOECO 25.62%	<ul style="list-style-type: none"> Finalize on Commercial agreements Finalize on Engineering Procurement Construction Installation (EPCI) bidding process
9	Vietnam 52/97		Exploration	20%	PVN 73.4% MOECO 19.6%	<ul style="list-style-type: none"> Finalize on Commercial agreements Finalize on Engineering Procurement Construction Installation (EPCI) bidding process
10	PTTEP Australasia (PTTEP AA)	OP	Exploration	20%		<ul style="list-style-type: none"> Completed Montara Field Divestment to Jadestone on 28 Sep 2018 Drill exploration well in AC/P54
11	Mozambique Area 1		Development	16.67%	Anadarko, Mitsui, 26.5%, 20% ENH, ONGC 15%, 10% Beas Rovuma, Bharat 10%, 10%	<ul style="list-style-type: none"> Announced FID with the onshore LNG facility of the initial two liquefaction trains, capacity of 12.88 MTPA on 18 June 2019 Successfully secured the long-term LNG sales of 11.1 MTPA with key LNG buyers in both Asia and Europe, expected the signing by the end of 2019 First Cargo is expected by 2024
12	Algeria Hassi Bir Rekaiz	OP	Development	30%	CNOOC 24.5% Sonatrach 51%	<ul style="list-style-type: none"> Started development on Phase 1 since March 2019 with the expected first oil production for the initial phase around 10,000-13,000 barrels per day (BPD) in 2021 and the second phase production capacity ramping up to around 50,000-60,000 BPD in 2025
13	Mariana Oil Sands	OP	Exploration	30%		<ul style="list-style-type: none"> Assess appropriated development approach
14	Barreirinhas AP1		Exploration	90%-100% (varied by permits)	Shell Brasil 65% Mitsui E&P Brasil 10%	<ul style="list-style-type: none"> Assess petroleum potential
15	Brazil BM-ES-23		Exploration	8.5%	Petrobras 65% INPEX 15%	<ul style="list-style-type: none"> Assess petroleum potential
16	Mexico block 12 (2.4)		Exploration	24.5%	PC Carigali Mexico 60% Ophir Mexico 20%	<ul style="list-style-type: none"> G&G study to access petroleum potential
17	Mexico block 29 (2.4)		Exploration	100%	Repsol Mexico 30% PC Carigali Mexico 28.33% Sierra Nevada 25%	<ul style="list-style-type: none"> G&G study to access petroleum potential
18	Abu Dhabi Offshore 1		Exploration	25%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> Conduct Seismic
19	Abu Dhabi Offshore 2		Exploration	20%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> Conduct Seismic and drill exploration & appraisal wells

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

Projects from Partex's Acquisition

Project Details (1/2)

	Country	Project	Working Interest	Type of Asset/ Status	2018 Total Production volume	2018 Net Sale volume
1	Sultanate of Oman	PDO (Block 6)	Government of Oman 60% Shell 34% Total 4% Partex 2% <i>PDO* (Joint Operating Company)</i>	Upstream Oil <i>Production</i>	610,000 BPD	12,200 BPD
2		Mukhaizna (Block 53)	Occidental* 47% OOCEP 20% Indian Oil 17% Mubadala 15% Partex 1%	Upstream Oil <i>Production</i>	120,000 BPD	700 BPD
3		Oman LNG	Government of Oman 51% Shell 30% Total 5.54% Korea LNG 5% Mitsubishi 2.77% Mitsui 2.77% Partex 2% Itochu 0.92% <i>OLNG* (Joint Operating Company)</i>	Midstream LNG <i>Production capacity 10.4 MTPA</i>	N/A	N/A
4	Republic of Kazakhstan	Dunga	Total* 60% OOCEP 20% Partex 20%	Upstream Oil <i>Production</i>	15,000 BPD	3,000 BPD

* Operator

Projects from Partex's Acquisition

Project Details (2/2)

	Country	Project	Working Interest		Type of Asset	2018 Total Production volume	2018 Net Sale volume
5	United Arab Emirates	AGP	ADNOC*	68%	Midstream Gas <i>Production Processing capacity 1.2 BCFD</i>	N/A	N/A
			Shell	15%			
			Total	15%			
			Partex	2%			
6	Republic of Angola	Block 17/06	Total*	30%	Upstream Oil <i>Pre-Development</i>	N/A	N/A
			Sonangol	30%			
			SSI	27.5%			
			Acrep	5%			
			Falcon Oil	5%			
			Partex	2.5%			
7	Federative Republic of Brazil	Potiguar	Partex*	50%	Upstream Oil <i>Production</i>	300 BPD	150 BPD
			Petrobras	50%			

* Operator

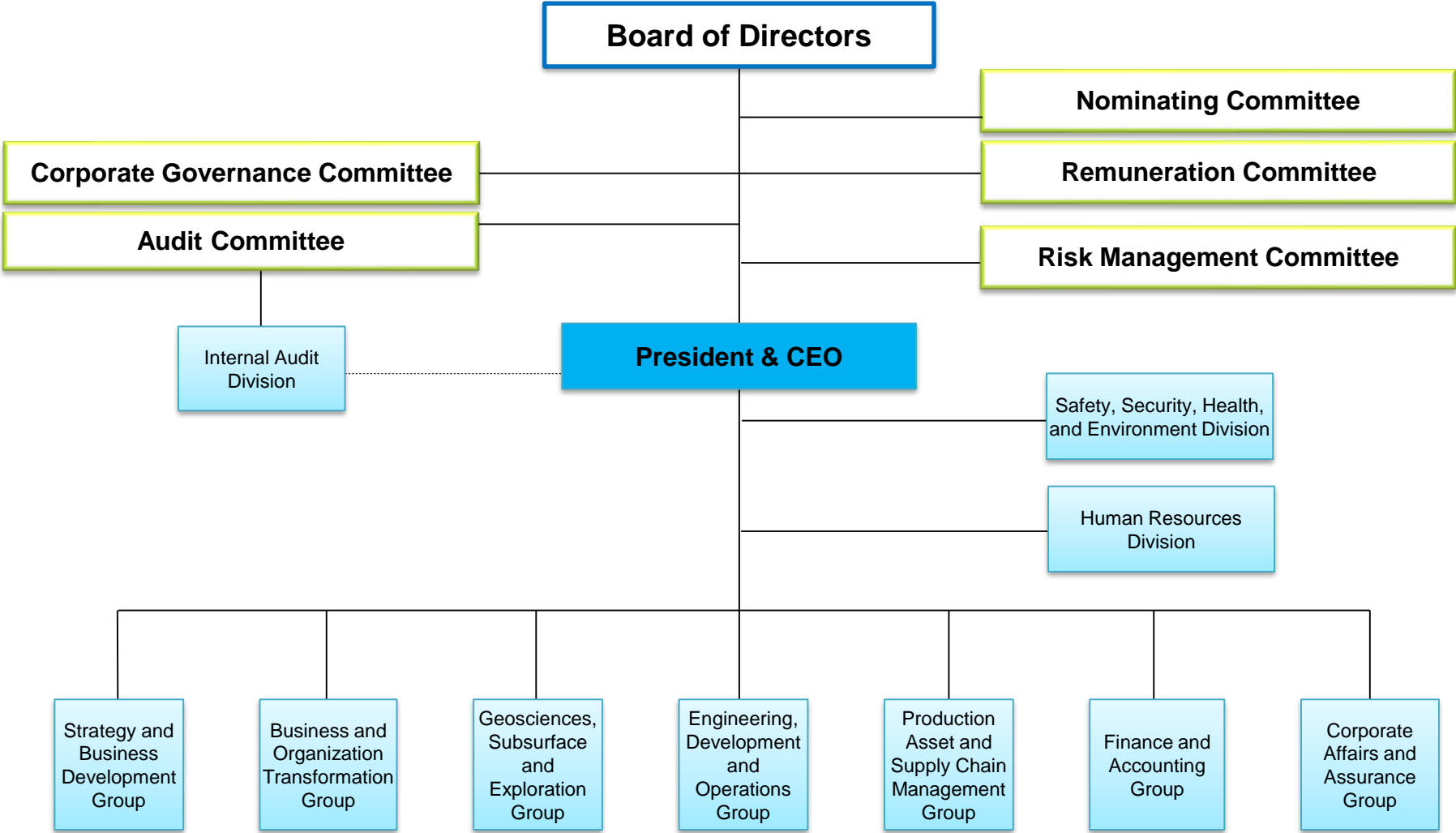
Note:

PDO: Petroleum Development Oman
 OLNG: Oman LNG L.L.C.
 OOCEP: Oman Oil Company Exploration & Production LLC
 ADNOC: Abu Dhabi National Oil Company
 SSI: Sonangol Sinopec International (SSI) Seventeen Limited

BPD: Barrel per Day
 BCFD: Billion Cubic Feet per Day
 MTPA: Million Ton per Annum

Organization structure

Ensuring transparency, integrity and good corporate governance



Ratio	Formula
Lifting Cost (\$/BOE)	$(\text{Operating Exp.} - \text{Transportation Cost} - \text{Stock Variation} - \text{Other expenses not related to lifting}) / \text{Production Volume}$
Cash Cost (\$/BOE)	$(\text{Operating Exp.} + \text{Exploration Exp.} + \text{G\&A} + \text{Royalties} + \text{Finance Cost}) / \text{Sales Volume}$
Unit Cost (\$/BOE)	$(\text{Operating Exp.} + \text{Exploration Exp.} + \text{G\&A} + \text{Royalties} + \text{Finance Cost} + \text{DD\&A}) / \text{Sales Volume}$
Reserves Replacement Ratio	$5\text{-Yr Additional Proved Reserves} / 5\text{-Yr Production Volume}$
Reserves Life Index (Year)	$\text{Proved Reserves} / \text{Production Volume}$
Success Ratio	$\text{Number of wells with petroleum discovery} / \text{Total number of exploration and appraisal wells}$
Sales Revenue	$\text{Sales} + \text{Revenue from pipeline transportation}$
EBITDA	$(\text{Sales} + \text{Revenue from pipeline transportation}) - (\text{Operating expenses} + \text{Exploration expenses} + \text{Administrative expenses} + \text{Petroleum royalties and remuneration} + \text{Management's remuneration})$
EBITDA Margin	$\text{EBITDA} / \text{Sales Revenue}$
Return on Equity	$\text{Trailing-12-month net income} / \text{Average shareholders' equity between the beginning and the end of the 12-month period}$
Return on Capital Employed	$(\text{Trailing-12-month net income} + \text{Trailing-12-month Interest Expenses \& Amortization of Bond Issuing Cost}) / (\text{Average shareholders' equity and average total debt between the beginning and the end of the 12-month period})$
Simple Effective Tax Rate	$\text{Income tax expenses} / \text{Income before income taxes}$
Total debt	$\text{Short-term loans from financial institution} + \text{Current portion of long-term debts} + \text{Bonds} + \text{Long-term loans from financial institution}$
Net debt	$\text{Total debt} - \text{Liquidity}$
Debt to Equity	$\text{Total debt} / \text{Shareholders' equity}$
Net Debt to Equity	$\text{Net debt} / \text{Shareholders' equity}$
Total Debt to Capital	$\text{Total debt} / (\text{Total debt} + \text{Shareholders' equity})$
Total Debt to EBITDA	$\text{Total debt} / \text{Trailing-12-month EBITDA}$
Net Debt to EBITDA	$\text{Net debt} / \text{Trailing-12-month EBITDA}$
EBITDA Interest Coverage Ratio	$\text{Trailing-12-month EBITDA} / \text{Trailing-12-month Interest Expenses \& Amortization of Bond Issuing Cost}$